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ABSTRACT

This bulletin includes reports of research which were in progress or had just been completed in the period from March 1977 through August 1977. Each entry includes information concerning the investigator, purpose, subjects, methods, duration, cooperating groups, and findings (if available). The reports are listed under several topical headings: (1) Long-Term Research, (2) Growth and Development, (3) Special Groups of Children, (4) The Child in the Family, (5) Socioeconomic and Cultural Factors, (6) Educational Factors and Services, (7) Social Services, and (8) Health Services. In addition to the reports on research, a selective bibliography on cognitive aspects of reading and mathematics learning is included. These references pertain to the ways in which cognitive development, cognitive processes, and cognitive style influence reading and mathematics learning. References include ERIC documents, journal articles, and dissertations. (RH)

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RESEARCH RELATING TO CHILDREN

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Bulletin 39

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NOTES: *Research Relating to Children* is prepared by the ERIC Clearinghouse on Early Childhood Education under the direction of Lilian G. Katz, Ph.D. Investigators who wish to submit abstracts of their research projects should address correspondence to:

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PREFACE

Research Relating to Children, Bulletin 39 includes reports of research in progress or recently completed research. With the exception of the section on Long-Term Research, it does not repeat studies included in *Bulletins 1* through *38* even though they are still in progress. This issue, therefore, does not reflect all research relating to children, but only research reported to us from March 1977 through August 1977.

In addition to reports of current research, *Bulletin 39* contains *Cognitive Aspects of Reading and Mathematics Learning: A Bibliography,* which updates previous ERIC Clearinghouse on Early Childhood Education bibliographies on the subject. The bibliographic sources include ERIC documents, journal articles, and dissertations that we hope you will find useful.

Publication references and plans are cited in the abstracts of research in the bulletin. The Clearinghouse, however, does not maintain information on the publications of the investigators. If you wish to obtain further details about any of the projects, please check professional journals in the appropriate field or write directly to the investigator.

We wish to thank investigators who have submitted reports of their research and those who have informed us of other studies. We wish to acknowledge the valuable assistance of the foundations that provided us with information about their research grants.

Lilian G. Katz, Ph.D.
Director
ERIC Clearinghouse on Early Childhood Education

To Research Investigators:

This publication is only as complete as you are willing to make it. On page 197 you will find a form for reporting your current research. On page 201 you will find a form to let us know of other investigators who are working in the field. Please let us hear from you.

Research Relating to Children
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Urbana, Illinois 61801

CONTENTS

PAGE

BIBLIOGRAPHY

Cognitive Aspects of Reading and Mathematics Learning: A Bibliography 1

LONG-TERM RESEARCH 19

GROWTH AND DEVELOPMENT

- Physical 35
- Intellectual 39
- Personality 58
- Social 67

SPECIAL GROUPS OF CHILDREN

- Physically Handicapped 75
- Mentally Retarded 89
- Gifted 95
- Emotionally Distrubed and Mentally Ill 98
- Juvenile Delinquency 108
- Corrections 110

THE CHILD IN THE FAMILY

- Family Relations 113
- Childrearing 121

SOCIOECONOMIC AND CULTURAL FACTORS 127

EDUCATIONAL FACTORS AND SERVICES

- General Education 133
- Specific Skills 147
- Special Education 151

SOCIAL SERVICES 155

HEALTH SERVICES 165

INSTITUTION INDEX 171

INVESTIGATOR INDEX 179

SUBJECT INDEX 185

OTHER ABSTRACTING JOURNALS AND SERVICES 195

SUMMARY OF RESEARCH REPORT FORM 197

COGNITIVE ASPECTS OF READING AND MATHEMATICS LEARNING
A BIBLIOGRAPHY

References contained in this selective bibliography pertain to the ways in which cognitive development, cognitive processes, and cognitive style influence reading and mathematics learning. The bibliography is divided into two sections—Reading and Mathematics. References include ERIC documents, journal articles, and dissertations.

Citations of ERIC documents (denoted by ED numbers) appeared in *Resources in Education*, and citations of journal articles and dissertations appeared in *Current Index to Journals in Education* and *Psychological Abstracts*. Journal articles are available in public libraries. Availability for dissertations is cited in the bibliography. ERIC documents may be ordered from:

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ERIC studies may be ordered on microfiche (MF) or in hard copy (HC). To read MF (a transparent film card), use a microfiche reader available in most large libraries. HC is a photocopy of the original document.

Each reference is followed by index terms that describe the nature of the material discussed. References cataloged in the ERIC system are indexed with major descriptors (marked with asterisks) and minor descriptors. References cataloged in *Psychological Abstracts* are indexed with major descriptors only without asterisks.

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Alvarez, Angela and Crellana, Eugenia. Development of the necessary processes for learning to read and write, from the standpoint of Piaget's theory. *Revista Latinoamericana de Psicologia*, 1975, 7(3), 381-390.

Cognitive Development, Perceptual Development, Piaget (Jean), Reading Readiness, Verbal Learning, Written Language

Arnold, Drew *et al.* The search for information in pictures. 1977, 9 pp. ED 131 456.

Behavioral Science Research, *Cognitive Processes, *Context Clues, Grade 5, Intermediate Grades, Language Research, *Pictorial Stimuli, *Reading Ability, *Reading Comprehension

Borucki, Diane Marie. The relationship of Piaget's stages of cognitive development to first grade reading achievement. 1976, 101 pp. Available from: University Microfilms, P. O. Box 1764, Ann Arbor, Michigan 48106 (Order No. 76-21,456, MF, $7.50; Xerography, $15.00).

*Beginning Reading, Cognitive Development, *Developmental Stages, Doctoral Theses, Grade 1, Primary Education, *Reading Achievement, *Reading Readiness, Reading Research, Sex Differences

Bowman, James Dale. Effects of a cognitive organizer with and without accompanying directions for its use as a facilitator of reading comprehension. 1975, 170 pp. Available from: University Microfilms, P. O. Box 1764, Ann Arbor, Michigan 48106 (Order No. 76-17,781, MF, $7.50; Xerography, $15.00).

*Cognitive Processes, Doctoral Theses, Higher Education, *Instructional Aids, *Learning Processes, *Reading Comprehension, Reading Instruction, Reading Research

Bruning, Roger H. *et al.* Memory by ear and by eye: Relationships to reading achievement. April 1977, 15 pp. ED 136 247.

*Auditory Perception, Cognitive Processes, Failure Factors, Intermediate Grades, *Memory, *Reading Difficulty, *Reading Processes, *Reading Research, Success Factors, *Visual Perception

Calfee, Robert C. Memory and cognitive skills in reading acquisition. In D. D. Duane and M. B. Rawson (Eds.), *Reading, perception, and language: Papers from the World Congress on Dyslexia.* Baltimore, Maryland: York Press, 1975. XII, $12.50. Pp. 55-95.

Cognitive Development, Cognitive Processes, Memory, Reading, Reading Education

Carpenter, Patricia A. and Just, Marcel Adam. Linguistic control of information processing. Final Report. September 1975, 164 pp. ED 121 114.

*Cognitive Processes, Language Skills, Language Tests, Linguistic Competence, Linguistic Theory, Memory, *Negative Forms (Language), *Psycholinguistics, *Reading Comprehension, Reading Tests, Sentence Structure, Syntax, *Testing, Verbal Tests

Cooper, Charles R. and Petrosky, Anthony R. Reading strategies and teaching implications for secondary schools from the psycholinguistic model of the reading process. *High School Journal,* November 1975, 59(2), 91-102.

Cognitive Processes, Definitions, *Psycholinguistics, *Reading Ability, *Reading Processes, Reading Programs, *Reading Research, Secondary Schools, Syntax

Cowan, J. Ronayne and Sarmed, Zohreh. Reading performance of bilingual children according to type of school and home language. Working papers on bilingualism. No. 11. August 1976, 42 pp. ED 129 057.

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Cox, Diane K. Field independence/field dependence and precocious kindergarten readers. 1976, 48 pp. ED 124 916.

*Beginning Reading, *Cognitive Processes, Reading Ability, *Reading Achievement, *Reading Research, *Visual Discrimination

Cramer, Eugene H. Pictures in your head: A discussion of relationships among mental imagery, reading comprehension, and reading attitude. 1976, 15 pp. ED 122 263.

*Cognitive Processes, High School Students, *Imagery, Multisensory Learning, *Reading Comprehension, Reading Processes, Reading Research, *Student Attitudes, *Visualization

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Davis, Ann Elizabeth Potter. Identification of the cognitive processes employed by teachers in the implementation of a reading program. 1976, 141 pp. Available from: University Microfilms, P. O. Box 1764, Ann Arbor, Michigan 48106. (Order No. 76-27,638, MF, $7.50; Xerography, $15.00).

*Behavior Patterns, *Cognitive Processes, Doctoral Theses, Elementary Secondary Education, Program Development, Reading Instruction, *Reading Programs, *Reading Research, Teacher Behavior, Teacher Evaluation, *Teaching Skills

Downing, John. What is decoding? *Reading Teacher*, November 1975, 29(2), 142-144. Cognitive Processes, Phonics, Reading Education

Edgell, John J. The relation between cognitive styles of children and their cognitive strategy in the attainment of selected mathematical concepts. *Dissertation Abstracts International*, November 1973, 34(5-A).

Cognitive Development, Cognitive Style, Concept Learning, Mathematics (Concepts), School Age Children

Ellis, DiAnn Joyce Waskul. The cognitive development of early readers. 1975, 192 pp. Available from: University Microfilms, P. O. Box 1764, Ann Arbor, Michigan 48106 (Order No. 76-4883, MF, $7.50; Xerography, $15.00).

*Cognitive Development, Conservation (Concept), Doctoral Theses, Early Childhood Education, *Early Reading, Middle Class, *Oral Reading, Preschool Education, *Reading Ability, *Reading Achievement, Reading Research, Reading Skills

Fernandes, Kathleen. An information processing model for reading and reading-like tasks. *Dissertation Abstracts International*, March 1975, 35(9-A), 5922.

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Finlayson, M. Alan and Reitan, Ralph M. Tactile-perceptual functioning in relation to intellectual, cognitive and reading skills in younger and older normal children. *Developmental Medicine and Child Neurology*, August 1976, 18(4), 442-446.

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Fox, Barbara Crowley. How children analyze language: Implications for beginning reading instruction. *Reading Improvement*, Winter 1976, 13(4), 229-234.

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Froese, Victor. The interrelationship of conservation reading readiness and intellectual maturity measures in first grades. *Reading Horizons*, Summer 1976, 16(4), 234-238.

*Cognitive Development, *Conservation (Concept), Grade 1, *Maturation, Primary Education, *Reading Readiness, Reading Research

Goldman, Susan R. Reading skill and the minimum distance principle: A comparison of listening and reading comprehension. *Journal of Experimental Child Psychology,* August 1976, 22(1), 123-142.

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Goldstein, David M. Cognitive-linguistic functioning and learning to read in preschoolers. *Journal of Educational Psychology,* December 1976, 68(6), 680-688.

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Golinkoff, Roberta Michnick and Rosinski, Richard R. Decoding, semantic processing, and reading comprehension skill. *Child Development,* March 1976, 47(1), 252-258.

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Grasser, Albert A. A multivariate analysis of cognitive style elements as they relate to aptitude and achievement factors in elementary algebra. *Dissertation Abstracts International,* May 1974, 34(11-A), 6943-6944.

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Henderson, Andrew G. Training in attention development, as related to cognitive style and reading performance among disadvantaged children. *Dissertation Abstracts International,* April 1974, 34(10-B), 5222.

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Jackson, Mark D. and McClelland, James L. Sensory and cognitive determinants of reading speed. *Journal of Verbal Learning and Verbal Behavior,* December 1975, 14(6), 565-574.

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Johnson, Henry C. The effects of subjective organizational ability and the organization of materials on reading comprehension: An information processing interpretation. *Dissertation Abstracts International,* March 1975, 35(9-A), 5925.

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Mackworth, Jane F. Information processing models of reading: A developmental approach. 1976, 14 pp. ED 123 580.

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Malone, Abrian McCoy. The correlation between children's reading ability and their cognitive development, as measured by their performance on a Piagetian-based test. 1975, 103 pp. Available from: University Microfilms, P. O. Box 1764, Ann Arbor, Michigan 48106 (Order No. 76-22,568, MF, $7.50; Xerography, $15.00).

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Mason, Jana M. Institute for Child Behavior and Development—The acquisition of reading skills: A developmental stage processing model. *Reading Improvement,* Winter 1975, 12(4), 195-202.

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Perfetti, Charles A. *et al.* Memory during oral and silent reading. 1976, 17 pp. ED 127 785.

*Cognitive Processes, Language Research, *Memory, Psycholinguistics, Reading, *Reading Comprehension, *Recall (Psychological), Retention, Semantics, Syntax, *Vocabulary

Pressley, G. Michael. Mental imagery helps eight-year-olds remember what they read. 1976, 18 pp. ED 123 595.

Behavioral Science Research, Cognitive Processes, Content Reading, Grade 3, *Imagery, *Learning Processes, Memory, *Mnemonics, Primary Education, *Prose, *Recall (Psychological), Retention, Retention Studies, Visualization

Rayner, Keith. Developmental changes in word recognition strategies. *Journal of Educational Psychology,* June 1976, 68(3), 323-329.

Age Differences, Cognitive Development, College Students, Elementary School Students, Kindergarten Students, Reading Skills, Words (Phonetic Units)

Reber, Arthur S. and Scarborough, Don L. (Eds.) *Toward a psychology of reading: The proceedings of the City University of New York conferences.* Available from: Halsted Press, A Division of John Wiley/Sons, Inc., 605 Third Avenue, New York, New York 10016 ($18.00 cloth).

*Beginning Reading, Cognitive Processes, Conference Reports, *Decoding (Reading), Elementary Secondary Education, Literature Reviews, Psychological Studies, *Reading Instruction, *Reading Processes, *Reading Research, Reading Tests, *Visual Perception

Sandberg, Karl C. Feature analysis and the teaching of reading. March 1976, 14 pp. ED 129 086.

*Applied Linguistics, Cognitive Processes, Memory, Psycholinguistics, Reading Ability, Reading Improvement, *Reading Instruction, *Reading Processes, *Reading Skills, *Reading Speed, Speed Reading, *Word Recognition

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Schwartz, Robert M. Strategic processes in beginning reading. Technical report No. 15. November 1976, 19 pp. ED 134 937.

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Shapiro, Jon E. The relationship of reading readiness skills to reflection-impulsivity and to the effects of visual discrimination training on impulsive first grade boys. *Dissertation Abstracts International,* July 1975, 36(1-A), 50.

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Sharps, Robert B. A study of interactions between fluid and crystallized abilities and two methods of teaching reading and arithmetic. *Dissertation Abstracts International,* September 1974, 35(3-A), 1432.

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Singer, Harry and Ruddell, Robert B. (Eds.) *Theoretical models and processes of reading.* Second edition. 1976, 768 pp. ED 124 919. Also available from: International Reading Association, 800 Barksdale Road, Newark, Delaware 19711 (Order No. 432, $12.00 member; $18.50 nonmember).

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Sones, Gittelle K. Relationship of cognitive styles and reading readiness in kindergarten children. *Dissertation Abstracts International,* December 1973, 34(6-A), 3161.

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Stack, Wesner Brown. Some relationships between operativity and reading comprehension. 1976, 190 pp. Available from: University Microfilms, P. O. Box 1764, Ann Arbor, Michigan 48106 (Order No. 76-24,269, MF, $7.50; Xerography, $15.00).

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> *Cognitive Processes, Cognitive Style, Doctoral Theses, Grade 4, Intermediate Grades, *Oral Reading, Predictive Validity, *Reading Achievement, *Reading Processes, Reading Research

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Cognitive Development, Elementary School Mathematics, Elementary Secondary Education, Instruction, *International Education, *Learning, Learning Theories, *Mathematics Education, *Research Reviews (Publications), Secondary School Mathematics

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*Cognitive Development, Evaluation, Mathematics Education, *Number Concepts, Problem Solving, Research, Secondary Education, *Secondary School Mathematics, Whole Numbers

Bye, M. P. Reading in mathematics and cognitive development. 1975, 18 pp. ED 124 926.

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Carlson, Gaylen R. Location of a point in Euclidian space by children in grades one through six. *Journal of Research in Science Teaching,* July 1976, 13(4), 331-336.

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Collis, Kevin F. Levels of thinking in elementary mathematics. *Australian Mathematics Teacher,* June 1976, 32(3/4), 133-141.

> *Cognitive Development, *Elementary School Mathematics, Elementary Secondary Education, Learning, Logic, Mathematics Education, *Number Concepts, *Secondary School Mathematics

Flake, Janice L. Covering versus uncovering mathematics. August 1975, 23 pp. ED 128 199. HC not available from EDRS.

> *Cognitive Development, *Conservation (Concept), Curriculum, Elementary Education, *Elementary School Mathematics, Instruction, *Learning Activities, *Manipulative Materials, Mathematics Education, Number Concepts

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> Cognitive Processes, High School Students, Mathematics Achievement, Mathematics (Concepts), Mathematics Education

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Cognitive Ability, Cognitive Processes, Elementary School Students, Junior High School Students, Mathematics (Concepts)

Hancock, Robert R. Cognitive factors and their interaction with instructional mode. *Journal for Research in Mathematics Education,* January 1975, 6(1), 37-50.

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Hollander, Sheila K. Strategies of selected sixth graders reading and working verbal arithmetic problems. *Dissertation Abstracts International,* April 1974, 34(10-A), 6258-6259.

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Jones, Linda V. The role of mental age and perceptual development in number concept formation. *Dissertation Abstracts International,* August 1974, 35(2-B), 1022.

Cognitive Development, Concept Formation, Mathematics (Concepts), Mental Age, Perceptual Development

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*Cognitive Development, Concept Formation, *Developmental Psychology, *Elementary Secondary Education, Learning Plateaus, *Learning Theories, Mathematical Concepts, Mathematical Logic, *Mathematical Models, Mathematics Instruction, *Psychological Studies, Research Projects, Thought Processes

Kapadia, Ramesh. The biogenetic law. *International Journal of Mathematical Education in Science and Technology,* November 1975, 6(4), 431-433.

Cognitive Development, *Course Content, Curriculum, *Curriculum Design, *Educational Principles, Elementary Secondary Education, *Instruction, *Mathematics Education, Specifications

Kidder, F. Richard. Elementary and middle school children's comprehension of Euclidian transformations. *Journal for Research in Mathematics Education,* January 1976, 7(1), 40-52.

*Cognitive Development, Elementary School Mathematics, Elementary Secondary Education, Geometric Concepts, *Geometry, *Learning, *Mathematics Education, *Research, Secondary School Mathematics, Transformations (Mathematics)

Langford, P. E. Development of concepts of infinity and limit in mathematics. *Archives de Psychologie,* Spring-Autumn 1974, 42(167-168), 311-322.

Adolescents, Cognitive Development, Concept Formation, Mathematics (Concepts), School Age Children

Lester, Frank K. Developmental aspects of children's ability to understand mathematical proof. *Journal for Research in Mathematics Education,* January 1975, 6(1), 14-25.

Adolescents, Age Differences, Cognitive Development, Mathematical Ability, Problem Solving, School Age Children

McDaniel, Ernest D. Serial integration and early arithmetic achievement. *Perceptual and Motor Skills,* October 1975, 41(2), 586.

Cognitive Development, Elementary School Students, Mathematics Achievement, Perceptual Development, Spatial Organization

McDaniel, Ernest D. and Guay, Roland B. Spatial abilities, mathematics achievement, and the sexes. April 1976, 15 pp. ED 125 917.

*Cognitive Development, Elementary School Mathematics, Elementary Secondary Education, *Mathematics Education, Nonverbal Ability, *Predictor Variables, *Research, *Sex Differences, Testing

McMahan, Ian D. Sex-role stereotypes of cognitive task performance. *Catalog of Selected Documents in Psychology,* May 1976, 6, 39.

Cognitive Processes, Mathematical Ability, Mechanical Aptitude, Sex Roles, Spatial Perception, Stereotyped Attitudes, Verbal Ability

Macnamara, John. A note on Piaget and number. *Child Development,* June 1975, 46(2), 424-429.

Cognitive Development, Concept Formation, Mathematics Education, Number Comprehension, Piaget (Jean)

Martin, J. Larry. A test with selected topological properties of Piaget's hypothesis concerning the spatial representation of the young child. *Journal for Research in Mathematics Education,* January 1976, 7(1), 26-38.

*Cognitive Development, *Elementary School Mathematics, *Geometric Concepts, *Learning Theories, Mathematics Education, *Research, Topology, Visual Perception

Martin, J. Larry. An analysis of some of Piaget's topological tasks from a mathematical point of view. *Journal for Research in Mathematics Education,* January 1976, 7(1), 8-24.

*Cognitive Development, Elementary Secondary Education, Haptic Perception, *Learning Theories, Mathematical Models, *Mathematics Education, *Research Reviews (Publications), Space Orientation, *Topology, Visual Perception

Martin, J. Larry and Bradbard, David A. (Eds.) Space and geometry. Papers from a research workshop. August 1976, 250 pp. ED 132 033. Also available from: Information Reference Center (ERIC/IRC), Ohio State University, 1200 Chambers Road, 3rd Floor, Columbus, Ohio 43212 ($4.25).

*Cognitive Development, Conference Reports, Curriculum, Elementary School Mathematics, Elementary Secondary Education, *Geometric Concepts, Geometry, Instruction, *Mathematics Education, *Research

O'Hara, Ethel. Piaget, the six-year-old and modern math. *Today's Education*, September/October 1975, 64(3), 32-36.

*Child Development, Child Psychology, *Cognitive Development, Educational Theories, *Elementary School Mathematics, *Mathematical Concepts, Mathematical Logic, Mathematics Curriculum, *Mathematics Instruction

Omotoso, H. M. Piaget's cognitive tasks as factors in the acquisition of mathematics among Nigerian children. *West African Journal of Educational and Vocational Measurement*, February 1976, 3(1), 17-24.

Africa, Cognitive Development, Elementary School Students, Mathematics Achievement, Mathematics (Concepts), Nursery School Students, Piagetian Tasks

Omotoso, Helen and Shapiro, Bernard. Conservation, seriation, classification and mathematics achievement in Nigerian children. *Psychological Reports*, June 1976, 38(3 Pt 2), 1335-1339.

Africa, Classification (Cognitive Processes), Cognitive Development, Conservation (Concept), Mathematics Achievement, Preschool Age Children, School Age Children

Osborne, Alan R. (Ed.) Investigations in mathematics education. Vol. 9, No. 4. 1976, 72 pp. ED 134 475. Also available from: Information Reference Center, (ERIC/IRC), Ohio State University, 1200 Chambers Road, 3rd Floor, Columbus, Ohio 43212 (Subscription, $6.00; Single Copy, $1.75).

*Abstracts, Cognitive Development, Effective Teaching, Elementary Secondary Education, *Instruction, *Learning, *Mathematics Education, Problem Solving, Research, *Research Reviews (Publications), State of the Art Reviews

Piaget, Jean. Comments on mathematical education. *Contemporary Education*, 1975, 47(1), 5-10.

*Cognitive Development, Deductive Methods, Elementary Education, Instructional Materials, Language, *Learning Theories, Logic, Mathematical Logic, *Mathematics Instruction, *Modern Mathematics, *Teaching Methods

Riggs, F. T. and Nelson, L. D. Verbal-nonverbal conservation and primary mathematics. *Journal for Research in Mathematics Education*, November 1976, 7(5), 315-320.

*Cognitive Development, *Conservation (Concept), *Elementary School Mathematics, Elementary Secondary Education, Geometric Concepts, Mathematics Education, Measurement, *Research

St. Martin, Allen H. An analysis of the relationship between two alternate procedures for the utilization of teaching aids and Piaget's developmental theory during the initial introduction of selected fifth grade mathematical topics. *Dissertation Abstracts International,* May 1975, 35(11-A), 7037-7038.

Cognitive Development, Educational Audiovisual Aids, Elementary School Students, Mathematics Achievement, Mathematics Education, Retention

Satterly, David J. Cognitive styles, spatial ability, and school achievement. *Journal of Educational Psychology,* February 1976, 68(1), 36-42.

Academic Achievement, Cognitive Style, Elementary School Students, Field Dependence, Intelligence, Mathematics Achievement, Perception, Spatial Perception

Sharps, Robert B. A study of interactions between fluid and crystallized abilities and two methods of teaching reading and arithmetic. *Dissertation Abstracts International,* September 1974, 35(3-A), 1432.

Cognitive Ability, Elementary School Students, Individualized Instruction, Mathematics Achievement, Mathematics Education, Reading Comprehension, Reading Education, Teaching Methods, Vocabulary

Shores, Jay H. and Underhill, Robert G. An analysis of kindergarten and first grade children's addition and subtraction problem solving modeling and accuracy. 1976, 35 pp. ED 121 626.

Addition, *Cognitive Development, *Conservation (Concept), Elementary Education, *Elementary School Mathematics, Learning, Mathematics Education, *Number Concepts, Problem Solving, *Research, Subtraction

Silvern, Steven B. and Yawkey, Thomas Daniels. An investigation of the relationships between several Piagetian conservation tasks and selected mathematical skills of children. *Southern Journal of Educational Research,* 1976, 10(4), 201-219.

Cognitive Development, *Conservation (Concept), Elementary Education, *Elementary School Mathematics, *Mathematical Concepts, *Skill Analysis

Smith, Robert F. Mathematics education in early childhood: Focus on the developing child. Teacher Education Forum; Volume 4, Number 11. May 1976, 12 pp. ED 128 306.

*Child Development, Cognitive Ability, *Cognitive Development, Cognitive Processes, *Elementary School Mathematics, Instructional Design, Mathematics Teachers, *Number Concepts, Numbers, Preservice Education, *Student Teaching, Teacher Educators, Teaching Experience, Teaching Techniques

Sohns, Marvin L. A comparison between certain Piagetian logical thinking tasks and the subtraction ability of first, second, and third grade children. *Dissertation Abstracts International,* January 1974, 34(7-A), 4091.

Age Differences, Cognitive Development, Logical Thinking, Mathematical Ability, Piagetian Tasks, School Age Children

Steffe, Leslie P. and Hirstein, James J. Children's thinking in measurement situations. *National Council of Teachers of Mathematics Yearbook,* 1976, 38, 35-59.

*Cognitive Development, Elementary Education, *Elementary School Mathematics, *Geometric Concepts, Instruction, Learning, Mathematics Education, *Measurement, Perceptual Development, *Research Reviews (Publications)

Wood, R. and Brown, M. Mastery of simple probability ideas among G.C.E. ordinary level mathematics candidates. *International Journal of Mathematical Education in Science and Technology,* August 1976, 7(3), 297-306.

*Cognitive Development, Curriculum, International Education, *Mathematical Concepts, Mathematics Education, *Probability, Secondary Education, *Secondary School Mathematics, *Tests

LONG-TERM RESEARCH

Note: The reports in this section concern
research programs that are continuous.

39-AA-1 LONGITUDINAL STUDY OF CHILD GROWTH AND DEVELOPMENT

Investigator(s): Frank Falkner, M.D., F.R.C.P., Director; Alexander F. Roche, M.D., Ph.D., Chief, Section on Physical Growth and Genetics; and Robert McCall, Ph.D., Chief, Section on Perceptual/Cognitive Development, Fels Research Institute for the Study of Human Development, 800 Livermore Street, Yellow Springs, Ohio 45387.

Purpose: To conduct a multidisciplinary study of children whose health, growth, psychological development, and environment have been studied since birth, with prenatal and genetic information; and to determine normative patterns of growth and development in human subjects.

Subjects: Over 800 subjects: from present infants to adults with their children in study. The subjects are healthy, from rural and urban areas, and from upper-lower to middle class backgrounds.

Methods: A multidisciplinary longitudinal study is being conducted with regular visits and use of appropriate analysis and computer methodology.

Duration: 1930-continuing.

Cooperating group(s): (1) Public Health Service, U.S. Department of Health, Education, and Welfare. (2) National Science Foundation. (3) Samuel S. Fels Fund. (4) U.S. Air Force.

Publications: Information is available from the investigators on approximately 1,022 publications that have been completed to date.

39-AA-2 DEVELOPMENT OF BUDGETS FOR CLOTHING AND HOUSEHOLD TEXTILES

Investigator(s): Virginia Britton, Ph.D., Home Economist, Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture, Federal Center Building No. 1, Hyattsville, Maryland 20782.

Purpose: To develop and update current household clothing budgets taking into account known physiological and sociopsychological needs, clothing habits, income, and other resources of various population groups, and the prices and availability of clothing items.

Subjects: 12,000 children in 6,000 families with husband and wife and one to five children, but with no other persons living in the home.

Methods: Data were gathered from the 1960-61 Survey of Consumer Expenditures by the Bureau of Labor Statistics and the U.S. Department of Agriculture. Budgets for children were computed using regression methods for three economic levels of the USDA food plans—economy, low cost, and moderate cost. Separate clothing budgets were computed for boys and girls categorized by age, region, and urbanization. Budgets will be published as total expenditures for children's clothing (updated to current price levels) and in garment equivalent units.

Findings: Budget costs for boys tended to equal comparable budgets for girls at the economy level. However, at higher budget levels, boys' costs were substantially less than girls' budgets. This was especially true for older children. Cost differences between clothing budget levels were substantially greater than between food plans, reflecting the greater elasticity of clothing expenditures. The majority of farm budgets and rural nonfarm budgets was about equal to the comparable urban budgets
Duration: 1962-continuing.
Publications: Britton, V. Clothing budgets for children from the USDA: Annual costs at three levels in four regions. *Home Economics Research Journal,* March 1973, 1(3), 173-184. (Reprints are available from: Sales Office, American Home Economics Association, 2010 Massachusetts Avenue, N.W., Washington, D.C. 20036. Price $1.00.)

39-AA-3 CHILD HEALTH AND DEVELOPMENT STUDIES

Investigator(s): Bea J. van den Berg, Ph.D., Research Pediatrician, School of Public Health, University of California, Berkeley, California 94720; Stephen Thomas, M.D., Director, Department of Obstetrics and Gynecology; and Edgar Schoen, M.D., Director, Department of Pediatrics, Kaiser Foundation Hospital, Oakland, California 94611.
Purpose: To investigate the relationships of biologic, genetic, and medical and environmental factors in the parents (including events in pregnancy, labor, and delivery) to the normal and abnormal development of the offspring; and to investigate the relationships of these factors to pregnancy loss in the form of early fetal death, perinatal mortality, infant and childhood mortality, and to incidence of congenital anomalies, to growth and morbidity patterns in infancy and childhood, and to cognitive attainment, behavioral development, and physical characteristics at ages 5 and 10 years.
Subjects: Members of the Kaiser Foundation Health Plan (a prepaid medical health plan) who reside in the San Francisco-East Bay Area.
Methods: The method of study is longitudinal for both mother and child. In addition to information obtained specifically for the studies, the medical records for the gravida and child provided information on illnesses, injuries, and drugs. A special interview and developmental examination were given the child on his 5th birthday and to a large sample of children when they were ages 9 to 11. These include vision, hearing, speech, and tests of cognitive ability. It is planned to extend the observations with a follow-up examination of a subcohort of about 2,000 mothers and their children when the latter are about 16 years old. An epidemiological research project is in process, aimed at the identification of precursory factors for high blood pressure in young persons.
Duration: July 1959-continuing.
Publications: Copies of a publication list and reprints are available from: Child Health and Development Studies, 3867 Howe Street, Oakland, California 94611.

39-AA-4 THE BERKELEY, CALIFORNIA GROWTH STUDY

Investigator(s): Dorothy H. Eichorn, Ph.D., Research Psychologist, Institute of Human Development, University of California, Berkeley, Calfornia 94720.
Purpose: To study the mental and physical growth of normally healthy persons from birth to the present.

Subjects: 60 full-term, healthy newborns, born in Berkeley hospitals from 1928 to 1929 of white, English-speaking parents; and 140 offspring of these subjects, ages birth to 20, seen irregularly.

Methods: The same data, appropriate for age, were collected for the subjects and their offspring. Beginning in the first week of life, tests of mental and motor development, pediatric examinations. and interviews were conducted at frequent intervals during growth. At all visits, inquiries were made concerning current health and recent illnesses. Anthropometrics, body photographs, and skeletal X-rays were taken at most ages. Socioeconomic data were collected. Studies of the physical aspects of growth include analyses that compare health histories with physical growth and [illegible]h skeletal maturation. Emotional and other personality variables are being studied for consistency, and in various interrelations with maternal behavior in infancy, birth histories, socioeconomic status, and intellectual and physical growth.

Duration: 1928-continuing.

Publications: (1) *American Psychologist*, 1968, 23(1), 1-17. (2) *Monograph of the Society for Research in Child Development*, 1963, 28. (3) Bayer, Leona and Bayley, Nancy. *Growth diagnosis: Selected methods for interpreting and predicting physical development from one year to maturity.* Chicago: University of Chicago Press, 1959.

39-AA-5 GROWTH AND PSYCHOPHYSIOLOGICAL PATTERNS IN INFANCY

Investigator(s): Wagner H. Bridger, M.D., Associate Professor of Psychiatry; and Beverly Birns, Ph.D., Assistant Professor of Psychology, Albert Einstein College of Medicine, Yeshiva University, Bronx, New York 10461.

Purpose: To investigate the origins and course of development of individual differences in neonates.

Subjects: Normal, healthy, full-term babies, 2 to 5 days old, born at Bronx Municipal Hospital Center.

Methods: A neonatal behavioral profile, which was established in previous studies, will be used. The profile includes behavioral and heart rate ratings on excitation, soothing, feeding, sleep, and nonstimulus periods of observation. Neonates will be followed at ages 2 weeks, and 1, 2, 3, and 4 months to measure the stability of early appearing traits and their relation to later behaviors. Data will be analyzed with respect to stability of early appearing behaviors and the relationship between neonatal behavior and maternal and birth history.

Duration: 1966-continuing.

Cooperating group(s): National Institute of Mental Health; Public Health Service; U.S. Department of Health, Education, and Welfare.

Publications: (1) Newton, Grant and Levine, Seymour (Eds.) *Early experience and behavior: Psychobiology of development.* Springfield, Illinois: Charles C Thomas, 1968. (2) *Psychosomatic Medicine*, 1966, 28, 316.

39-AA-6 LONGITUDINAL STUDY OF DENTOFACIAL SKELETAL, PHYSICAL GROWTH, AND NUTRITION OF CHILDREN

Investigator(s): Bhim Sen Savara, D.M.D., M.S., Chairman, Child Study Clinic, School of Dentistry, Health Sciences Center, University of Oregon, Portland, Oregon 97201.

Purpose: To study the dentofacial growth of children, assess skeletal age related to facial growth, and variations in physique and its effect on dentofacial growth; and to determine heritable traits.

Subjects: Over 400 subjects (including 40 pairs of twins), followed from preadolescence to adulthood, with records taken every 6 months until age 14 and yearly thereafter.

Methods: Cephalograms, hand, wrist, and calf x-rays, intraoral x-rays, dental study casts, anthropometric measurements, and photographs are taken and oral examinations administered to the subjects every 6 months until age 14 and yearly thereafter. A system has been developed to combine cephalometric data with dental cast measurements. In effect, the cephalograms are expanded to three dimensions by using both frontal and lateral cephalograms of the Broadbent Bolton cephalometric system, then study cast is measured in three dimensions and mathematically placed in this expansion. Measurements are corrected for magnification and distortion by transformation formulae (Savara 1965).

Findings: See Publications below. Over 50 publications have been generated from this longitudinal program since it was begun in 1949.

Duration: 1949-1978.

Cooperating group(s): National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare.

Publications: (1) A list of publications is available from the investigator. (2) Some recent publications include: (a) Savara, B. S. and Takeuchi, Y. A longitudinal study of effects of electrical burns on growth of the oro-facial structures (in press). (b) Takeuchi, Y.; Savara, B. S.; and Shadel, R. J. Norms of size and biennial increments of eight anatomical measures of the temporal bone in boys and girls from 4 to 20 years of age (in press). (c) Savara, B. S. and Steen, J. C. Timing and sequence of eruption of permanent teeth in a longitudinal sample of Oregon children (in press). (d) Takeuchi, Y. *et al.* Longitudinal growth study of the sphenoid bone using factor analysis (in press). (e) Savara, B. S. and Takeuchi, Y. Locating landmarks on sphenoid and temporal bones (in press). (f) Arya, B. S. and Savara, B. S. Field theory and mesiodistal tooth size. *Journal of Indian Orthodontic Society,* 1976, VIII(4), 23-28.

39-AA-7 NEW RADIOGRAPHIC STANDARDS OF REFERENCE FOR SKELETAL DEVELOPMENT OF CHILDREN AND STANDARDS IN PREPARATION

Investigator(s): S. Idell Pyle, Ph.D., Research Associate in Anatomy, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106; William W. Greulich, Ph.D., Research Biologist, National Institute of Child Health and Human Development, Bethesda, Maryland 20014; and staff of the National Center for Health Statistics involved in the National Health Survey, Public Health Service, U.S. Department of Health, Education, and Welfare, Washington, D.C. 20201.

Purpose: To develop radiographic standards of reference for skeletal development of children to provide a basis for identifying maturity levels of growing bones in the hands, elbows, shoulders, hips, knees, and feet of children and youths according to the shapes of the bone shadows in an X-ray film.

Subjects: Approximately 1,000 healthy individuals in Cleveland and Boston.

Methods: The bone shadows in an X-ray film display a modal rate of growth of each bone by illustrating regularly occurring osseous features which develop in series in the surface of the bone cortex as it calcifies. A reference standard consists of films arranged as a series to show sequential osseous features which are alike in males and females. It is an instrument for measuring the skeletal maturity level of children. Films of the subjects, covering the full span of growth from birth to adulthood, have been used to prepare standards. A standard of reference for joints in the upper extremity is in preparation, with the section on the hand and wrist showing the application of cardinal maturity indicators of individual bones to handwrist bones which are anomalous in the number of their bone growth centers. For published standards, see publication references listed below.

Duration: 1948-continuing.

Cooperating group(s): Bolton-Brush Growth Study Center, Case Western Reserve University, Cleveland; Department of Maternal and Child Health, Harvard University School of Public Health, Boston; National Center for Health Statistics, Rockville, Maryland; Departments of Pediatrics and Endocrinology, Henry Ford Hospital, Detroit; Merrill-Palmer Institute, Detroit; Department of Education, Eastern Michigan University, Ypsilanti.

Publications: (1) Greulich, W. W. and Pyle, S. I. *A radiographic atlas of skeletal development of the hand and wrist* (2nd Ed.) Stanford, California: Stanford University Press, 1959. (2) Hoerr, N. L.; Pyle, S. I.; and Francis, C. C. *A radiographic atlas of skeletal development of the foot and ankle* (1st Ed.) Springfield, Illinois: Charles C Thomas, 1962. (3) Pyle, S. I. and Hoerr, N. L. *A standard of reference for the growing knee* (2nd Ed.) Springfield, Illinois: Charles C Thomas, 1969. (4) Pyle, S. I.; Waterhouse, A. M.; and Greulich, W. W. *A standard of reference for the growing hand and wrist* (1st Ed.) Cleveland, Ohio: The Press of Case Western Reserve University, 1971.

39-AA-8 METHODS IN CHARACTER DEVELOPMENT

Investigator(s): Ernest M. Ligon, Ph.D., Director; and staff, Union College Character Research Project, 10 Nott Terrace, Schenectady, New York 12308.

Purpose: To develop more effective methods in character development in cooperation with families and character training agencies. ("Character" is defined in terms of three dimensions: philosophy of values, breadth of social vision, and strength of purpose.)

Subjects: Children and families throughout the United States. The families belong to churches, YMCAs, and schools but participate in the study as individual families.

Methods: Procedures of the research are based on action research, in which the participants cooperate with the laboratory and use methods of coscientist research. Open-ended reports on research goals constitute the basic body of research data. An analysis of these data serves as the basis for the development of new procedures and for the scientific reports that are published concerning it.

Findings: Reports have been prepared concerning hypotheses tested in the home and character building agencies. Most of the findings relate to the home, learning, decision making, and methods for character development, plus descriptions of age level potentials, especially for decision making.

Duration: 1935-continuing.

Cooperating group(s): Lilly Endowment, Inc.

Publications: Catalog: *Attitude Education and Character Development,* which lists 44 publications and includes a price list, is available from the investigator.

39-AA-9 LONGITUDINAL GROWTH STUDIES OF CHILDREN WITH CRANIOFACIAL BIRTH DEFECTS

Investigator(s): Samuel Pruzansky, D.D.S., Director, Center for Craniofacial Anomalies, Medical Center, University of Illinois, P.O. Box 6998, Chicago, Illinois 60680.
Purpose: To study the epidemiology, genetics, morphology, physiology, and postnatal development of children; and to plot the natural history of children with craniofacial birth defects.
Subjects: Over 3,000 subjects, males and females, from infancy to adulthood.
Methods: The subjects were initially studied as infants. Procedures included roentgenocephalometry, tomography, dental casts, and photographs. Speech and hearing, psychosocial, and pediatric evaluations supplied additional information.
Findings: Patterns of growth have been delineated that are useful in clinical management. Some conditions have been shown to get worse; some show spontaneous improvement; and others remain unchanged. Syndrome-specific cranial morphologies have been described and genetic significance has been described.
Duration: 1949-continuing.
Cooperating group(s): (1) Illinois State Pediatric Institute. (2) Division of Services for Crippled Children, University of Illinois. (3) Cook County Children's Hospital. (4) Division of Research; Maternal and Child Health Services; National Institutes of Health; Public Health Service; U.S. Department of Health, Education, and Welfare. (5) National Institute of Dental Research; National Institutes of Health; Public Health Service; U.S. Department of Health, Education, and Welfare.
Publications: *Cleft Palate Journal,* 1971, 8, 239. A list of articles in journals of dentistry, medicine, public health, speech and hearing, and psychology is available from the investigator.

39-AA-10 NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS (NAEP)

Investigator(s): J. Stanley Ahmann, Ph.D., Project Director; Roy Forbes, Ed.D., Project Director; and George Johnson, Ph.D., Associate Project Director, National Assessment of Educational Progress, 700 Lincoln Tower, 1860 Lincoln Street, Denver, Colorado 80203.
Purpose: To obtain census-like data on the knowledge, skills, concepts, understandings, and attitudes possessed by young Americans; and to measure the growth or decline in educational attainments that occur over time in the 10 learning areas assessed.
Subjects: 27,000 subjects annually in each age group: 9, 13, and 17 (including high school dropouts and early graduates); and 5,000 young adults annually, ages 26 to 35.
Methods: The National Assessment of Educational Progress is an annual national survey that assesses 10 learning areas: art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies, and writing. Three areas have been assessed twice: science (1969-70 and 1972-73); writing (1969-70 and 1973-74); and reading (1970-71 and 1974-75). The four age levels assessed were selected to correspond to the end of primary, intermediate, secondary, and postsecondary education. A national probability sample of approximately 2,500 to 2,600 individuals per group administered package, and a sample of 2,100 to 2,200 individuals per individually adminstered package are assessed annually. The samples are designed to allow NAEP to estimate the performance of the population for that age level. Students in school are assessed in small groups up to 12, or in some cases, in individual interviews. Paper and pencil questions, discussions, and actual tasks to perform are included among the exer-

cises. Adults are interviewed individually at home, and 17-year olds who are out of school also respond to exercises individually. Results are reported for about 50 percent of the exercises given each year and are stated in percentages of people responding correctly or incorrectly. Results are reported nationally and for geographic region, size and type of community, age, sex, race, and parental education.

Duration: 1969-continuing.

Cooperating group(s): (1) National Center for Educational Statistics; U.S. Office of Education; Education Division; U.S. Department of Health, Education, and Welfare. (2) Carnegie Corporation. (3) Ford Foundation's Fund for the Advancement of Education. (4) Research Triangle Institute. (5) Measurement Research Center. (6) Education Commission of the States.

Publications: The National Assessment Publications List is available from: Education Commission of the States, 300 Lincoln Tower, 1860 Lincoln Street, Denver, Colorado 80203.

39-AA-11 COLLABORATIVE STUDIES IN CEREBRAL PALSY AND OTHER NEUROLOGICAL AND SENSORY DISORDERS OF INFANCY AND CHILDHOOD

Investigator(s): Joseph S. Drage, M.D., National Institute of Neurological and Communicative Disorders and Stroke, National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare, Bethesda, Maryland 20014.

Purpose: The Collaborative Perinatal Project (CPP) is a longitudinal multidisciplinary research effort which seeks leads to the etiologies of cerebral palsy, mental retardation, learning disorders, congenital malformations, minimal brain dysfunction, convulsive disorders, and communicative disorders through studies which relate the events, conditions, and abnormalities of pregnancy, labor, and delivery to the neurological and mental development of the children of these pregnancies.

Subjects: During a period from 1959 through 1966, detailed research data were obtained from 50,000 women during pregnancy, labor, and delivery. The children born to these 50,000 women during their participation in the CPP have been examined at specific intervals up to the child's 8th birthday to identify abnormal conditions which might limit the child's ability to reach maximum developmental potential.

Methods: A comprehensive analysis of the data will investigate the complex interactions between the child's condition and the antecedent factors which may have contributed to the condition. The analysis of this data is underway within the National Institutes of Health, within other governmental agencies, and under contract with teams of investigators at medical centers outside of government. The Perinatal Research Branch and the National Institute of Neurological and Communicative Disorders and Stroke have the responsibility for monitoring, coordinating, and administering the overall research effort. The goal of this effort is to make a series of publications available to the research community and the general public. The projected completion of this analysis is June 30, 1976. The data for the CPP were collected at 12 major medical centers in the United States.

Duration: 1956-continuing.

Cooperating group(s): Charity Hospital, New Orleans, Louisiana; Johns Hopkins University School of Medicine, Baltimore, Maryland; Boston Lying-In Hospital, Children's Medical Center, and Harvard University (Warren Anatomical Museum), Boston, Massachusetts; University of Minnesota Medical School, Minneapolis, Minnesota; Columbia-Presbyterian Medical Center, New York, New York; Children's Hospital of Buffalo, Buffalo, New York; University of Oregon Medical School, Portland, Oregon;

31

Children's Hospital of Philadelphia and Pennsylvania Hospital, Philadelphia, Pennsylvania; Brown University, Providence, Rhode Island; University of Tennessee Medical School, Memphis, Tennessee; Medical College of Virginia, Richmond, Virginia.
Publications: (1) Niswander, K. R. *et al. The women and their pregnancies, 1972.* (The Collaborative Perinatal Study of the National Institute of Neurological and Communicative Disorders and Stroke.) Available from: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Order Stock No. 1749-00038; price, $10.00. (2) A bibliography is available from the investigator.

39-AA-12 STUDY OF PERSONALITY ORIENTED DEVELOPMENT BY THE TWIN INTRAPAIR COMPARISON METHOD

Investigator(s): William Pollin, M.D., Chief; Donald Cohen, M.D., Clinical Associate; and Eleanor Dibble, Research Social Worker, Section on Twin and Sibling Studies, Adult Psychiatry Branch, National Institute of Mental Health, Health Services and Mental Health Administration, Public Health Service, U.S. Department of Health, Education and Welfare, Bethesda, Maryland 20014.
Purpose: To understand the contributions of genetic, constitutional, and environmental factors to social, emotional, and cognitive development during the first years of life; specifically, to explicate the factors that underlie the emergence of individuality, using twins and triplets as subjects.
Subjects: Twins and triplets, from the prenatal period through elementary school age.
Methods: The central methodological principle emphasizes the effort to define precisely developmental differences within infant and childhood MZ twin pairs, and then search for the determinants of such differences. In the longitudinal study, parents are interviewed as soon as the diagnosis of a twin pregnancy is made. Neurological, pediatric, and developmental assessments are performed at birth and at 3- to 6-month intervals during the first years of life. The parents are interviewed at the same intervals about the children's development and family history. In the preschool period, the children receive standardized psychological testing, are observed in a standardized nursery school setting, and are administered projective psychological testing. Children and families are visited at home and are also seen in structured office settings. In cross-sectional studies, children are seen for developmental evaluation, psychological assessment, and observations of free play; and their parents are interviewed. The value of questionnaire techniques is being investigated. A general research question relates to the way in which constitutional differences in the children elicit different types of parenting, and the ways in which differential parental behavior shapes the emergence of personality differences in children.
Duration: 1967-1980.

39-AA-13 PREVENTIVELY ORIENTED SCHOOL MENTAL HEALTH PROGRAMS

Investigator(s): Emory L. Cowen, Ph.D., Professor, Department of Psychology, and Director; D. A. Dorr, Ph.D., Research Coordinator; L. D. Izzo, M.A., Chief Psychologist; and M. A. Trost, M.A., Chief Social Worker, Primary Mental Health Project, University of Rochester, River Campus Station, Rochester, New York 14627.
Purpose: To detect and prevent school maladaptation.
Subjects: 7,500 school children, including 4,500 primary children in 11 preventively oriented school mental health programs.
Methods: Current research, which originated in 1958 (see *Research Relating to Children, Bulletin 19,* January-September 1965, Study 19-SS-7, p. 214), includes 23 studies on train-

ing nonprofessionals, evaluation of programs, process analyses, selection-process relations, selection-outcome relations, and process-outcome relations. Between 20 and 30 different research instruments and assessment procedures are being used.
Duration: 1958-continuing.

39-AA-14 LANGUAGE ACQUISITION IN THE CONTEXT OF THE DEVELOPMENT OF BEHAVIOR AND INTERACTION

Investigator(s): Margaret Bullowa, M.D., Researcher, Speech Communication Group, Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.
Purpose: To find the steps by which early stages of the child's language development take place.
Subjects: Four firstborn children from white, English-speaking, middle class families.
Methods: Each child was observed from birth for at least 30 months at home at weekly intervals. On each visit a half hour continuous record was made on tape and film. An observer using a shielded microphone dictated a simultaneous description of ongoing behavior and interaction to supplement the film taken by a robot camera. A timing signal was placed on the tape and film every 5 seconds. (The tape and film from an observation may be synchronized during playback in the laboratory.) In addition, an independent team that consisted of a pediatrician and a developmental psychologist visited each baby's home once a month to assess other aspects of maturation and development. Indexes to sound and transcripts were made from the tapes to permit rapid search. Tapes are analyzed by linguists interested in phonological, semantic, and syntactic features. Synchronized tape and film is studied by linguists and by the principal investigator, who is interested in the communicative behavior of which the vocalization forms a part.
Findings: The most significant finding is the apparent obligatory relationship between the child's vocal sound production and actions with the same meaning in early *performative sentences*. Such sentences are used by the child to communicate messages when he is showing something to someone, when he is greeting someone, etc. Another finding is the spontaneous appearance of sentences with topic-comment construction in the child's speech even though parents rarely use this construction. (The construction is not characteristic of adult American English.)
Duration: Pilot study, 1959-1965; present study, 1965-continuing.
Cooperating group(s): National Institutes of Health; Public Health Service; U.S. Department of Health, Education, and Welfare.
Publications: (1) *Journal of Child Psychiatry,* 1964, III(1), 53. (2) *Monographs of the Society for Research in Child Development,* 1964, 29(1), 101-114. (3) *Language and Speech,* 1964, 7(2), 107-111. (4) *Quarterly Progress Report of the Research Laboratory of Electronics,* 1966, 81, 181-186. (5) *Lingua,* 1967, 19(1), 1-59. (6) *Foundations of Language,* 1967, 1, 37-65. (7) Reibel, D. A. and Schane, S. A. (Eds.) *Modern studies in English.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1969. Pp. 422-447. (8) Bar-Adon, A. and Leopold, W. F. (Eds.) *Child language: A book of readings.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971. (9) *Journal of the American Academy of Child Psychiatry,* 1971, 10(1), 124-135. (10) *Quarterly Progress Report of the Research Laboratory of Electronics,* M.I.T., 1971. No. 100. (11) Bullowa, M. From communication to language. Presented at the International Symposium on First Language Acquisition, Florence, Italy, 1972 (mimeo). (12) Bullowa, M. and Putney, E. A method for analyzing communicative behavior between infant and adult from film. Presented at a meeting of the International Society for the Study of Behavioral Development, Ann Ar-

bor, Michigan, 1973 (mimeo). (13) Bullowa, M. Non-verbal communication in infancy. Presented at the 1st Congress of the International Association for Semiotic Studies, Milan, Italy, 1974 (preprint). (14) Gruber, J. S. Correlations between the syntactic constructions of the child and of the adult. In C. A. Ferguson and D. Slobin (Eds.), *Studies of child language*. Holt, Rinehart and Winston, 1973. Pp. 440-445. (15) Bullowa, M. When infant and adult communicate, how do they synchronize their behaviors? In A. Kendon *et al.* (Eds.), *Organization of behavior in face-to-face interaction*. Mouton, 1975. Pp. 97-129. (16) Bullowa, M. *et al.* Infant vocalization: Communication before speech. In T. R. Williams (Ed.), *Socialization and communication in primary groups*. Mouton, 1975. Pp. 243-281. (17) Bullowa, M. A matrix for language. Presented at the 21st Annual Conference of the International Linguistic Association, New York City, March 1976 (mimeo). (18) Bullowa, M. From communication to language. *International Journal of Psycholinguistics* (in press). (19) Bullowa, M. Infants as conversational partners. In T. F. Myers (Ed.), *The development of discourse and conversation*. Edinburgh University Press (in press). (20) Bullowa, M. From performative act to performative utterance. In S. K. Ghosh (Ed.), *Biology, language and human behavior*. University Park Press (in press).

39-AA-15 THE HARVARD PRESCHOOL PROJECT

Investigator(s): Burton L. White, Ph.D., Director; Jean Watts, Ph.D., Co-Director; and Barbara Kaban, M.A., The Harvard Preschool Project, Laboratory of Human Development, Graduate School of Education, Harvard University, 418 Larsen Hall, Appian Way, Cambridge, Massachusetts 02138.

Purpose: To trace the development of educability and competence in children during the first 6 years of life; and simultaneously to trace the role of experience in such development.

Subjects: Presently, 32 normal children, ages 12 to 32 months, of both sexes, half of whom were selected because they exhibited potentials to develop high degrees of general competence during the second and third years of life; while the other children seemed likely to develop a considerably lower level of competence.

Methods: The work in progress constitutes a longitudinal natural experiment. Data are collected by home observation and testing of the children on the average of 2 hours per week. One observational technique consists of tape recordings in which the observer describes the child's activities. The data are then coded onto forms using instruments developed for the project. Another technique involves a checklist record of behavior. Tests of language and cognitive development are administered regularly. Factors are measured including stream of experience, the child's competencies, and salient environmental influences.

Findings: Analysis of preliminary data indicates that the observation instruments are monitoring the development of competence in promising ways. Further indications of how childrearing practices influence the process are becoming clear. The mother, or substitute, usually through indirect action, is seen as the major environmental influence on the development of competence. A longitudinal experiment will be initiated this year. (See *Research Relating to Children, Bulletin 22*, May-December 1967, Study 22-DA-3, p. 16.)

Duration: September 1965-continuing.

Cooperating group(s): (1) U.S. Office of Economic Opportunity. (2) Carnegie Corporation, New York. (3) Head Start; Office of Child Development; Office of Human Development; U.S. Department of Health, Education, and Welfare.

39-AA-16 LEARNING OF INCENTIVE VALUE IN CHILDREN

Investigator(s): Jum C. Nunnally, Ph.D., Professor, Department of Psychology, Vanderbilt University, Nashville, Tennessee 37203.
Purpose: To study the learning of incentive value in children through the use of reward conditioning.
Subjects: Elementary school children, ages 7 to 11.
Methods: Neutral objects (usually nonsense syllables) are associated with receipts of reward, nonreward, and loss of reward in various types of research designs. The amounts and kinds of condition reward value are measured in relation to verbal evaluation, reward expectancy, choice behavior, and measures of selective attention.
Findings: Various consistent effects have been found on the dependent measures, and the research paradigms have been able to differentiate many treatment conditions concerned with secondary rewards.
Duration: 1963-continuing.
Cooperating group(s): Office of Education; U.S. Department of Health, Education, and Welfare.
Publications: (1) Rileigh, K. K. and Nunnally, J. C. A new measure of semantic appraisal for studies of secondary rewards. *Psychonomic Science,* 1970, 18, 203-205. (2) Wilson, W. H. and Nunnally, J. C. A naturalistic investigation of acquired meaning in children. *Psychonomic Science,* 1971, 23, 149-150.

39-AA-17 CHILDHOOD PSYCHOSIS

Investigator(s): Rudolf Ekstein, Ph.D., Director, Childhood Psychosis Project; Seymour W. Friedman, M.D., Director, Clinical Services; Peter Landres, M.D., Staff Psychiatrist; Beatrice M. Cooper, M.A., Senior Research Social Worker; and Joel Liebowitz, Ph.D., Clinical Research Psychologist, Reiss-Davis Study Center, 9760 West Pico Boulevard, Los Angeles, California 90035.
Purpose: To develop better diagnostic and treatment methods for childhood psychosis; and to investigate psychoanalytic methods of treatment, the use of support systems, and work with parents, collaborating agencies, schools, and hospitals.
Subjects: 10 children, ages 5 to 20.
Methods: Data were gathered through tape recordings of psychotherapy sessions, therapists' summaries of sessions, and repeated psychological tests. The use of *distance* as a psychological mechanism will be investigated. (See *Research Relating to Children, Bulletin 18,* March-December 1964, Study 18-L-36, p. 58; and *Bulletin 20,* October 1965-May 1966, Study 20-IA-1, p. 72.)
Duration: 1957-continuing.
Publications: (1) *Children of time and space, of action and impulse.* New York: Appleton-Century-Crofts, 1966. (2) *The challenge: Despair and hope in the conquest of inner space.* New York: Brunner/Mazel, 1971. (3) Ekstein, R. and Friedman, S. W. Do you have faith that I'll make it? *Reiss-Davis Clinic Bulletin,* 1971, 8(2). (4) Rubin, K. The flawed hammer. *Reiss-Davis Clinic Bulletin,* 1971, 8(2). (5) Cooper, B. The flawed triangle. *Reiss-Davis Clinic Bulletin,* 1971, 8(2). (6) Liebowitz, J. M. Transformation of the flaw—Re-evaluation via psychological testing. *Reiss-Davis Clinic Bulletin,* 1971, 8(2). (7) Ekstein, R. and Wax, D. Fusion and diffusion of memory and perception in childhood psychosis in relation to psychotherapeutic innovations. *Reiss-Davis Clinic Bulletin,* 1972, 9(2). (8) Ekstein, R.; Friedman, S.; and Caruth, E. The psychoanalytic treatment of childhood schizophrenia. In B. B. Wolman (Ed.), *Manual of child psychopathology.* New York: McGraw Hill, 1972. Pp. 1035-1057.

39-AA-18 A SURVEY OF THE NUTRITIONAL STATUS OF BRITISH SCHOOL CHILDREN

Investigator(s): Judith Cook, M.B., B.Chem., Lecturer; Douglas Altman, B.Sc., Lecturer; W. W. Holland, M.D., F.F.C.M., Professor; and S. G. Topp, B.Sc., Dip.Stat., Lecturer, Department of Clinical Epidemiology and Social Medicine, School of Medicine, St. Thomas's Hospital, London S.E.1, England; and A. Elliott, M.D., D.P.H., County Medical Officer, Kent County Council, Kent, England.
Purpose: To examine the dietary intake of school children and investigate its relationship to health and socioeconomic factors; and to explore the extent and nature of poor nutrition.
Subjects: 1,017 children, born between 1953 and 1955 or between 1958 and 1960, residing in and attending Local Authority schools in four areas in Kent, England. The sample was stratified by social class, family size, and weight. Higher sampling fractions were taken for children (1) from larger families, (2) from lower social classes, (3) with no fathers, and (4) with low weights, in order to have adequate numbers of subjects in those groups suspected of having the greatest likelihood of deficiency.
Methods: Field work for each child, conducted between September 1968 and March 1970, was comprised of a weighted diet record, a socioeconomic questionnaire, and a medical examination. The weighted diet record was kept for 1 week and was closely supervised by a trained field worker. The same field worker administered the socioeconomic questionnaire which elicited information on family structure, father's occupation, mother's education and working status, the child's health history and eating pattern, and the parents' heights. The medical examination, carried out by one of two medical officers, included a clinical assessment of the nutritional status of the child; measurements of height, weight, triceps and subscapular skinfold thickness, arm circumference, and peak expiratory flow rate. The medical examination also noted clinical evidence of vitamin deficiency.
Duration: 1968-continuing.
Cooperating group(s): Department of Health and Social Security.
Publications: (1) Cook, J. *et al.* A survey of the nutritional status of school children. Relation between nutrient intake and socioeconomic factors. *British Journal of Preventive Social Medicine,* 1973, 27, 91-99. (2) Topp, S. G.; Cook, J.; and Elliott, A. Measurement of nutritional intake among school children. *British Journal of Preventive Social Medicine,* 1972, 26, 106.

39-AA-19 RESEARCH AND GUIDANCE LABORATORY SUPERIOR STUDENT PROJECT

Investigator(s): Marshall P. Sanborn, Ph.D., Director; and Charles Pulvino, Ph.D., Associate Director, Research and Guidance Laboratory, University of Wisconsin, 1025 West Johnson, Madison, Wisconsin 53706.
Purpose: To develop and demonstrate procedures for the identification and description of multipotential and promising youths; to study the guidance and educational development of human potential; and to serve as a demonstration and development center for counseling, guidance, and planning activities for all cooperating high schools.
Subjects: This is a longitudinal sample now numbering 3,700 males and females, ages 14 to 30, from 90 Wisconsin school systems, whose average mental test scores are in the upper three to five percent of students in their age range and grade in school. Subjects are selected using criteria designed to identify multipotential youths in grade 9. These criteria include aspects of the student's vocabulary, spoken and written communication, reading background, range of interests, school performance, creativity, and learning behavior.

Methods: Subjects visit the laboratory facilities for 1 day at least once during their period of high school attendance. Arranged activities include testing and evaluation, analysis of written and oral performances, visits to classes and laboratories, and conferences with university staff members in any area of interest. These activities are designed to (1) broaden students' horizons with respect to educational and vocational opportunities, (2) develop realistic self-concepts about their own strengths and interests, (3) foster plans for suitable educational programs, (4) discover methods for overcoming limitations, (5) encourage development of personal and academic strengths, and (6) provide counsel on matters that may influence the individual student's fullest development. Findings are interpreted and implications are considered with the student in individual counseling sessions. Laboratory staff teams (1) visit students' schools and hold conferences with the parents of each participating child to inform parents about characteristics of their children which they may not know; (2) stimulate action of parents to meet their child's developmental needs; (3) facilitate communication between the parents, school, and student; and (4) discover points of view and other parental characteristics which affect the student's development. A written report regarding each individual student is sent to his or her school containing information about the student's performance, interests, and needs, as well as suggestions the school could implement to provide desired educational or personal experiences. Inservice training sessions are held to discuss specific students, suggestions to the school, and general principles for guidance and education for superior students. Objectives of these training sessions are (1) stimulation of and assistance with the processes of identification of superior students; (2) encouragement and assistance in making special provision for the development of superior students, and stimulation to do so for other students; (3) provision of information about educational and vocational requirements and opportunities particularly applicable to superior students; (4) encouragement of innovation and experimentation in school procedures for superior students as well as for other students; and (5) demonstration of appropriate guidance services for high school students. Although there are difficulties in obtaining adequate control groups, some research studies have been done comparing laboratory participants with other students matched on academic, familial, school, and community variables. In addition, comparisons of the effectiveness of two or more procedures for accomplishing a particular guidance goal have been made in other laboratory research studies.

Findings: The Research and Guidance Laboratory is a cooperative effort which has maintained direct, personal, longitudinal, and functional relationships between the University of Wisconsin and 3,700 top students, their parents, and their teachers throughout Wisconsin (See *Research Relating to Children, Bulletin 22,* May-December 1967, Study 22-QA-1, p. 83.) More than 97 percent of all student participants who have graduated from high school have enrolled in higher education programs. Many have gone on to graduate and professional study. As a group, these young people have established a very outstanding record in college.

Duration: 1957-continuing.

Cooperating group(s): (1) Office of Education; Education Division; U.S. Department of Health, Education, and Welfare. (2) Ninety cooperating school systems in Wisconsin.

Publications: (1) Laboratory monograph: Research on the gifted and talented student, 1976. (2) Sanborn, M. P. and Niemiec, C. J. Identifying values of superior high school students. *School Counselor,* March 1971. (3) Bradley, R. W. and Sanborn, M. P. Ordinal position of high school students identified by their teachers as superior. *Journal of Educational Psychology,* 1969, 60(1), 41-45. (4) Mowsesian, R.; Heath, R. G.; and Rothney, J. W. M. Superior students' occupational preferences and their fathers' occupations. *Personnel and Guidance Journal,* November 1966. (5) Refer to *Education Index* for other publications related to this project.

39-AA-20 PANEL STUDY OF FAMILY INCOME DYNAMICS

Investigator(s): James N. Morgan, Ph.D., Program Director; and Greg Duncan, Ph.D., Study Director, Institute for Social Research, University of Michigan, P. O. Box 1248, Room 3063, Ann Arbor, Michigan 48106.

Purpose: To measure changes in economic well being and explain them by following a representative sample of families over time, monitoring their economic status, employment experiences, housing, transportation, food consumption, attitudes, and behavior patterns.

Subjects: A national probability sample oversampling lower income families but weighted to provide unbiased estimates. All individuals from the original 1968 sample of families are retained.

Methods: Families containing sample members are interviewed each year. Personal interviews were conducted during the first 5 years; currently families are contacted by telephone. The 1976 interview (9th year) included a supplemental interview with wives. The questionnaire used has a very detailed income sequence. An achievement motivation and a cognitive skills sentence completion test was included in 1972. Many attitude measures were included in the interviews during the first 5 years. Since the study follows children who leave parental homes, there are now 1,500 individuals who were children in 1968 and are now heads of households, for which there is information reported by parents in the early years of the study.

Duration: 1967-continuing.

Cooperating group(s): Office of the Assistant Secretary for Planning and Evaluation; U. S. Department of Health, Education, and Welfare.

Publications: *Five thousand American families. Patterns of economic progress,* Vols. 1-5. Ann Arbor, Michigan: Institute for Social Research, 1974-1977.

39-AA-21 ST. LOUIS BABY STUDY

Investigator(s): Thomas E. Jordan, Ed.D., Graduate Dean and Director of Research, Graduate School and Office of Research, University of Missouri, 8001 Natural Bridge Road, St. Louis, Missouri 63121.

Purpose: To describe developmental patterns of children; and to identify factors influencing physical and cognitive attainment.

Subjects: Of three cohorts of children the most important has been the second, a set of 1,008 babies born in St. Louis between Winter 1966 and Spring 1967.

Methods: This study incorporates data from biological, behavioral, and social information on the development from birth of 1,000 children. The cohort is comprised of children from families of all social classes, and ethnic and income levels. Cooperation was consistent across subjects. Information was collected through individual case studies in which families were visited by caseworkers at scheduled times. The hypothesis tested is that there is a statistically significant relationship between a set of predictors and criteria. Data were gathered on predictor variables grouped under the headings child, mother, and ecology. Child predictors included birthweight, Apgar score, sex, biological risk status at birth, a measure of development at 12 months using the Jordan Ad Hoc Scale of Development (AHSD), and weight at 12 months. The AHSD was developed to elicit information during interviews with unsophisticated mothers. Validity of the instrument is indicated by a statistically significant correlation between 12-month Ad Hoc scores and the 24-month Binet mental age measure. Maternal predictors included an anxiety score 6 months postpartum, age at delivery, IQ, an authoritarian score, childrearing ideology, and marital status. Ecological data included race and several measures of socioeconomic status at various ages. Measurements of cognitive attainment were taken at ages 2, 3, 4, 5, 6, 7, and 8. Criteria were (1) age 2: the intellectual score of the Preschool Attainment Record (Doll, 1966) and the Verbal Language Development Scale (Mecham, 1959); (2) age 3: the Peabody Picture Vocabulary Test, Form A (Dunn, 1965); (3) age 4: the Boehm Test of Basic Concepts and the Preschool Inventory (Caldwell, 1970); (4) age 5: the Illinois Test of Psycholinguistic Abilities, Auditory Association and Auditory Sequential Memory Subtests, and the Wechsler Preschool and Primary Scale of Intelligence Vocabulary Subtest; (5) age 6: the Coloured Progressive Matrices, Peabody Picture Vocabulary Test (B), and Wepman's Test of Auditory Discrimination; (6) age 7: the WRAT Reading Test, and Fulton's Test of Occupational Knowledge; (7) age 8: the SESAT Reading Test, and a classroom rating scale; (8) age 9: the Rubin-Balow School Behavior Profile; (9) at all ages, birth to age 11 (ad hoc) height and weight are recorded; (10) at all ages, measures of maternal values and family characteristics are gathered. The multiple linear regression model developed by Bottenberg and Ward, and Koplyay's Automatic Interaction Detector program (AID-4) are used in statistical analysis of the data.

Duration: 1960-continuing.

Publications: (1) Jordan, T. E. *Old Man River's children.* Academic Press (in press). (2) Ernhart, C. B.; Spaner, S. D.; and Jordan, T. E. Validity of selected preschool screening tests. *Contemporary Educational Psychology,* 1977, 2, 78-89. (3) Jordan, T. E. Developmental factors influencing exceptional status at age six years. *Contemporary Educational Psychology,* 1976, 1, 1-16. (4) Jordan, T. E. *The mentally retarded* (4th Ed.). Merrill Books, 1976 (contains original data from the study). (5) Jordan, T. E. Influences on preschool cognitive attainment. *MLRV Monographs,* 1976, 6(1). (6) Jordan, T. E. The natural history of 1,008 infants in the preschool years. National Institute of Education, 1974. (7) Jordan, T. E. *Development and disability at age four: A prospective longitudinal study.* CEMREL, Inc., 1972. (8) Jordan, T. E. Early developmental adversity and the first two years of life. *Multivariate Behavioral Research Monographs,* 1971, 6(1).

39-AA-22 CHILDREN'S CANCER STUDY GROUP

Investigator(s): Denman Hammond, M.D., Chairman, Children's Cancer Study Group, School of Medicine, University of Southern California, 1721 Griffin Avenue, Los Angeles, California 90031.

Purpose: To improve the treatment of childhood cancers through controlled clinical trials of newly developed therapies and combinations of therapeutic modalities carried out by multidisciplinary teams.

Subjects: 4,000 pediatric patients each year, ages 0 to 21, both leukemic and solid tumor patients.

Methods: Data collection and management are carried out in the group's Operations Office located at the University of Southern California School of Medicine in Los Angeles. All patient data are computerized and analyzed by the statistical staff of the Operations Office.

Duration: 1955-continuing.

Cooperating group(s): (1) National Cancer Institute, Division of Cancer Treatment, Clinical Investigations Branch. (2) Twenty-three researchers at university medical schools and children's hospitals throughout the United States and Canada including: University of Michigan, Ann Arbor; Children's Hospital of the District of Columbia; Children's Hospital of Los Angeles; Babies Hospital, New York; Children's Hospital of Pittsburgh; Children's Hospital of Columbus; Children's Orthopedic Hospital, Seattle; University of Wisconsin, Madison; University of Minnesota, Minneapolis; University of Utah Medical

Center, Salt Lake City; Children's Memorial Hospital, Chicago; Princess Margaret Hospital, Toronto; University of Texas, San Antonio; University of Rochester, New York; Children's Hospital of Milwaukee; Children's Hospital of Philadelphia; Cornell Medical Center, New York; Indiana University, Indianapolis; New Jersey College of Medicine, Newark; Harbor General Hospital, Torrance; University of California, San Francisco; Children's Hospital of Louisville; and University of British Columbia, Vancouver.

Publications: A list of publications is available from the investigator.

GROWTH AND DEVELOPMENT

Physical

39-CA-1 THE EFFECTS OF INFANTILE VACCINATION ON GROWTH

Investigator(s): Thomas K. Landauer, Ph.D., Bell Laboratories, 600 Mountain Avenue, Murray Hill, New Jersey 07974; J. W. M. Whiting, Ph.D., Professor, Laboratory of Human Development, Harvard University, Cambridge, Massachusetts 02138; and J. M. Kagia, M.D., University of Nairobi, Nairobi, Kenya.
Purpose: To determine experimentally whether early vaccination for smallpox enhances growth as suggested by correlational cross-cultural and longitudinal data.
Subjects: Approximately 300 girls and boys, ages 3 to 9 in 1973, who live in a single community in Kenya.
Methods: Age at vaccination for smallpox was randomly varied. Otherwise all children were treated identically. Measurements will be done without knowledge of vaccination history.
Findings: At an average age of 5 years, those children who were vaccinated before age 2 had grown significantly more than those vaccinated at a later age. Leg length and head circumference were especially affected.
Duration: 1968-1992.
Cooperating group(s): University of Nairobi, Bureau of Educational Research.
Publications: Monroe, R. and Monroe, R. (Eds.) *Handbook of cross-cultural research on child development* (in preparation).

39-CB-1 SELF-MANAGEMENT PROCESSES IN ADOLESCENCE

Investigator(s): Carl E. Thoresen, Ph.D., Professor; and Thomas J. Coates, M.A., Research Associate, Center for Educational Research at Stanford, Stanford University, Stanford, California 94305.
Purpose: To develop a conceptualization of self-management processes in adolescents; and to apply a treatment program to the problem of eating among adolescents.
Subjects: 21 girls and boys, ages 14 to 17, who were clinically overweight.
Methods: Subjects were placed into one of three groups: two experimental and one control. Data were collected through a questionnaire, self-reports of eating behavior, and in-home observations.
Findings: Weight loss using a self-management format requires family and therapist support.
Duration: February 1977-February 1978.
Cooperating group(s): Spencer Foundation.
Publications: Coates, T. J. and Thoresen, C. E. Behavioral self-management in treating obesity in adolescents. In *Advances in behavioral medicine.* New York, New York: Academic Press, Inc. (in press).

41

39-CC-1 EIDETIC IMAGERY IN CHILDREN

Investigator(s): Allan Paivio, Ph.D., Professor; and Murray Cohen, M.A., Doctoral Candidate, Department of Psychology, University of Western Ontario, London, Ontario, Canada.

Purpose: To determine if any relationship exists between eidetic memory and oral comprehension; and to determine if there are any differences in recognition memory performance between "eidetikers" and "noneidetikers".

Subjects: 214 children, ages 5 to 8, in kindergarten and grades 2 and 3.

Methods: All children were tested for eidetic imagery using Doob's criteria. Language comprehension tests were given to 15 children identified as "eidetikers" and to a sample of 139 age-matched "noneidetikers." A recognition memory study using visual (picture) stimuli was done using 14 eidetikers and 14 age-matched noneidetikers.

Findings: No relation was found between language comprehension and eidetic imagery, although in the Grade 2 sample, eidetic imagery subjects showed lower comprehension scores than noneidetic imagery subjects. No differences were found between groups for recognition memory performance.

Duration: November 1974-completed.

Cooperating group(s): National Research Council of Canada.

39-CC-2 EFFECT OF LENS OVERCORRECTION OF MYOPES

Investigator(s): Henry W. Hofstetter, O.D., Ph.D., Professor; and David Goss, B.A.B., O.D., Associate Instructor, School of Optometry, Indiana University, Bloomington, Indiana 47401.

Purpose: To test the theory that overcorrection of myopia will result in less of an increase in myopia than undercorrection.

Subjects: 30 children: boys under age 15 and girls under age 13, who are myopic, solicited from the Indiana University Optometry Clinic.

Methods: Frequent monitoring of refractive error and subjective experiences were used to assess the effects of overcorrection. A control group received conventional correction.

Duration: January 1977-March 1978.

39-CC-3 SENSORY AND PERCEPTUAL FUNCTIONING OF YOUNG CHILDREN WITH AND WITHOUT DELAYED LANGUAGE DEVELOPMENT

Investigator(s): Rachel E. Stark-Seitz, Ph.D., Assistant Professor, Department of Pediatrics; and Paula Tallal, Ph.D., Assistant Professor, Department of Neurology, John F. Kennedy Institute, Johns Hopkins University, 707 North Broadway, Baltimore, Maryland 21205.

Purpose: To determine the sensory and perceptual functioning of children with language, speech, and reading impairments.

Subjects: Phase I: 50 normal and 36 language delayed children. Phase II: 36 speech articulation impaired and 36 reading impaired children. All children are ages 4 to 8½.

Methods: All subjects are given standardized psychological and speech and language tests along with audiological, neurological, and visual evaluations. Those who meet the criteria as normal or impaired in one of the three categories are given a battery of tests designed to assess auditory processing, visual processing, oral stereognostic perception, and cross-modal integration.

Duration: June 1975-October 1978.

Cooperating group(s): (1) Departments of Special Education, Baltimore City and Baltimore County, Maryland. (2) Howard County, Maryland.

39-CC-4 VISUAL EVOKED POTENTIALS IN DYSLEXIC CHILDREN

Investigator(s): Cesare T. Lombroso, M.D., Ph.D., Professor; Yoichi Matsumiya, Ph.D., Principal Associate in Neurology; Nicole Symann-Louett, M.D.; and Generoso G. Gascon, M.D., Assistant Professor, Harvard Medical School, 300 Longwood Avenue, Boston, Massachusetts 02115.
Purpose: To investigate visual cortical evoked potentials (VEP) in dyslexic children; to determine whether they are different from normal VEP; and to examine the results for leads into the etiology of dyslexia.
Subjects: 20 normal and dyslexic children, ages 8 to 14—mostly male.
Methods: Subjects were presented with words selected from the Thorndyke-Lorge List (1944) displayed on an oscilloscope slaved to a PDP-12 computer. The computer controlled stimulus presentation and was also used to average evoked responses. The subjects were asked to watch the center of the display scope where the stimulus was presented. Two seconds after stimulus presentation a question mark appeared, and the subject was instructed to press a key when it appeared, then fixate on the center of the screen again. Two seconds after the key pressing, the next visual stimulus was presented. Electroencephalographic recordings were made during stimulus presentation.
Findings: See Publications below.
Duration: 1972-1978.
Cooperating group(s): National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare.
Publications: (1) Symann-Louett, N. *et al.* Wave form difference in visual evoked responses between normal and reading disabled children. *Neurology,* February 1977, 27, 156-159. (2) Lombroso, C. T. *et al.* Dyslexia: Differences in visual evoked responses to meaningful and nonmeaningful stimuli. *Neurology,* April 1974, 24, 349.

39-CF-1 STUDY OF ROENTGENOGRAMS OF CHILDREN WITH MARKED RETARDATION IN SKELETAL MATURATION

Investigator(s): Reginald M. Archibald, M.D., Ph.D., Professor and Senior Physician, Rockefeller University Hospital, Rockefeller University, 1230 York Avenue, New York, New York 10021.
Purpose: To ascertain factors that lead roentgenologists to read skeletal ages excessively low (or high) so as to improve the accuracy of reading skeletal ages, thereby increasing the accuracy of prediction of adult height, and hence the accuracy of assessment of effects of administration of anabolic agents on adult height.
Subjects: Boys and girls, ages 1 to 18, attending the child growth clinic of the Rockefeller University Hospital.
Methods: Roentgenograms of children who have attended this clinic over the past 28 years are being selected for special study and careful evaluation. Roentgenograms of children who have received anabolic agents and of those who have not (including untreated siblings as controls) are being studied.
Findings: Metacarpals give more accurate leads to true skeletal age than do carpals.
Duration: 1960-1980.

39-CG-1 THE DEVELOPMENT OF SKILLS

Investigator(s): K. J. Connolly, Ph.D., Professor and Head; J. M. Elliott, Ph.D., Lecturer; and Ann Harrison, Ph.D., Research Worker, Department of Psychology, University of Sheffield, Western Bank, Sheffield, United Kingdom S10 2TN.
Purpose: To investigate the development of motor skills in young children with particular emphasis on manual skills.
Subjects: Normal, healthy girls and boys, ages 12 months to 6 years; and cerebral palsied children, ages 2 to 12.
Methods: The experimental investigations are designed to examine information processing aspects of motor skills using direct observation techniques and high speed video recordings. EMG feedback techniques are being used to train cerebral palsied individuals.
Duration: 1968-continuing.
Publications: (1) Connolly, K. and Harrison, A. In K. S. Holt, *Movement and child development*, Heinemann, 1975. (2) Elliott, J. and Connolly, K. J. In K. Connolly and J. Bruner, *The growth of competence*. Academic Press, 1973. (3) Connolly, K. J. In R. S. Hinde and T. S. Hinde, *Constraints on learning*. Academic Press, 1973. (4) Connolly, K. J. and Elliott, J. In N. Blurton Jones (Ed.), *Ethological studies of child behaviour*. Cambridge University Press, 1972. (5) Connolly, K. J. (Ed.) *Mechanisms of motor skill development*. Academic Press, 1970.

39-CG-2 VESTIBULAR STIMULATION INFLUENCE ON MOTOR DEVELOPMENT IN INFANTS

Investigator(s): J. R. Kreutzberg, L.P.T., Graduate Student; F. K. W. Chee, L.P.T., Graduate Student; and David L. Clark, Ph.D., Associate Professor, Department of Anatomy, 1645 Neil Avenue, Ohio State University, Columbus, Ohio 43210.
Purpose: To determine the effects of semicircular canal stimulation on gross motor behavior in normal infants.
Subjects: 26 normal infants, ages 3 to 13 months, both sexes.
Methods: Children were pretested for semicircular canal function and for level of gross motor development. Based on level of motor ability, they were assigned as matched pairs to control and treatment groups. Children assigned to the treatment group received 16 regularly spaced sessions of semicircular canal stimulation during the 4 weeks following the pretest. A posttest, identical to the pretest, was conducted during the 6th week. Analyses of covariance and t-tests were applied to the data.
Findings: A highly significant improvement (acceleration) of gross motor development was seen as a function of the sessions of semicircular canal stimulation. Semicircular canal function was described quantitatively, and habituation of postrotatory nystagmus was seen to be relatively mature at this age.
Duration: January 1975-June 1977.
Cooperating group(s): (1) United Cerebral Palsy of Franklin County. (2) Easter Seal Society. (3) Ohio State University, Nisonger Center.
Publications: *Science*, Spring-Summer, 1977.

39-CG-3 A STUDY OF PRAXIC BEHAVIOR IN CHILDREN

Investigator(s): Bryant J. Cratty, Ed.D., Professor, Department of Kinesiology, University of California, Los Angeles, California 90024.
Purpose: To study the degree to which a motor planning quality emerges in children, ages 3 to 7.
Subjects: Normal, Caucasian boys and girls, ages 4 to 6; and boys and girls designated as minimally neurologically impaired.
Methods: In a normative study, children were given a demonstration of a six-count movement to be copied using the hand. A four-way analysis of variance was used to assess the interaction of sex, age, handedness, and performance.
Duration: March 1977-March 1978.
Cooperating group(s): Los Angeles City Schools.

39-CG-4 SCRATCHING OF INFANTS

Investigator(s): C. E. Schorer, M.D., Assistant Director, Clinical Affairs, Lafayette Clinic, 951 East Lafayette, Detroit, Michigan 48207.
Purpose: To determine the significance of neonatal scratching to later motor development.
Subjects: 28 neonatal scratchers and 28 nonscratchers born in 1962.
Methods: Infants were seen the day of their birth and were given a scratching or nonscratching status. Birth histories were obtained from hospital records. Follow-up interviews with the mothers were conducted via telephone at 6 weeks and 3 and 6 months. Subjects were seen at 1 and 5 years. Measures administered to the children include the Wechsler Intelligence Scale for Children, Minnesota Multiphasic Personality Inventory, Vineland Social Maturity Scales, and other neurological and psychological tests.
Findings: Scratchers have more skin disease and are more dexterous.
Duration: 1962-1980.

Intellectual

39-DB-1 THE EFFECTS OF NOVELTY ON THE YOUNG CHILD'S EXPLORATION OF OBJECTS

Investigator(s): Katie Best Butler, M.A., Acting Director, Mary Moody Northern Center for Early Childhood Education, 15th Street and Avenue E, Galveston, Texas 77550.
Purpose: To investigate the effects of novelty on young children's exploration of commonplace three-dimensional objects; and to examine the effects of the repeated exposure of the novel object on the subjects' exploration.
Subjects: 15 male and 15 female black children, ages 54 to 60 months, from low income families. Subjects were enrolled in the day care component of an early childhood education center.
Methods: A repeated measures design was used. Five males and five females were randomly assigned to each of three unfamiliar objects. The object to which a subject was assigned became the novel object for that subject. The other two objects took on familiar stimulus properties through repeated exposure to the subjects during four individual 10-minute familiarization sessions. The novel object was then added to the two familiar

objects during the following four 10-minute sessions which occurred twice daily, 2 days in succession. The observer recorded the subject's exploration of the three objects on a checklist at the end of each 10-second interval, which was indicated by a recorded sound heard through a listening post connected to a cassette tape recorder. Data from the last four observation sessions were analyzed by multivariate analysis of variance to test whether or not there is a significant difference between the amount of exploration of the novel object and that of the highest scoring familiar objects. To determine if there was a trend and, if so, the nature of the trend, trend analysis was used to test whether or not a decrease in exploration of the novel object occurred over the four sessions.
Duration: October 1976-April 1977.

39-DB-2 GENETIC AND ENVIRONMENTAL INFLUENCES ON THE DEVELOPMENT OF PIAGETIAN LOGICO-MATHEMATICAL CONCEPTS

Investigator(s): Steven G. Vandenberg, Ph.D., Professor; Arleen Garfinkle, M.A., Project Coordinator; and Richard Simmons, B.A., Graduate Student, Institute for Behavioral Genetics; and Michael L. Claussner, B.A., Graduate Student, Department of Education, University of Colorado, Boulder, Colorado 80309.
Purpose: To study the development of logico-mathematical concepts in monozygous and dizygous twin pairs; to investigate interrelationships among logico-mathematical concept development and verbal, reasoning, memory, and brain laterality developmental factors; and to investigate environmental influences.
Subjects: 200 Caucasian, same-sex twin pairs, ages 4 to 8½ (50 monozygous and 50 dizygous pairs of each sex), living in Colorado and representing the full range of socioeconomic backgrounds.
Methods: Twin zygosity is determined by parental questionnaire of twin similarity, PTC, PROP, and fingerprint analysis. Twins take the Piagetian Mathematical Concepts Battery (PMCB), Peabody Picture Vocabulary Test, Raven Coloured Progressive Matrices, Visual Memory, Piagetian Punishment Judgment Tasks, and laterality measures. Parents complete the Moos Family Environment Scale and Attitudes Toward Education Questionnaire, and provide occupational and educational data. Environmental influences on test performance will be analyzed by multiple regression. A *broad* heritability will be calculated for performance on each test. Using multiple regression, the effects of all other measures will be partialled out of variance in PMCB performance, and PMCB residual scores subjected to genetic and environmental analyses by path analysis. Similarly, analyses will be done on residual scores of each cognitive test.
Findings: Age is highly correlated with performance on the various cognitive measures. Twins of lower socioeconomic status are difficult to locate and more hesitant to participate.
Duration: January 1976-August 1978.
Cooperating group(s): (1) Various school districts and mothers of twins' clubs throughout Colorado. (2) University of Colorado, Council on Research and Creative Work.

39-DB-3 NAUGHTY OR NICE: A DEVELOPMENTAL STUDY OF CAUSAL ATTRIBUTION FOR SOCIAL INTERACTIONS

Investigator(s): Barbara A. Quinn, Ph.D., Research Associate, Department of Psychology, Brandeis University, Waltham, Massachusetts 02154.
Purpose: To examine how children at different periods of cognitive development (preoperational, concrete, and formal operations) use the information types specified in

Kelley's (1967) model (consensus, distinctiveness, and consistency) to make causal attributions about the behaviors of peers in social interactions.
Subjects: 108 children and 36 adults: 18 boys and 18 girls from each of grades 1, 3, 6; and 18 men and 18 women undergraduates.
Methods: Subjects were presented with three story pairs accompanied by illustrations, each varying one type of information at a time. Subjects were asked to compare agents (actors) and targets (persons acted upon) to decide which was nicer, meaner, etc.; i.e., to make a causal attribution of personal responsibility. Responses were compared to predicted choices based on Kelley's model. Agent, target, and total attributions were analyzed using 3- and 4-way analyses of variance (age X sex X information type X attribution type).
Findings: The data revealed developmental trends in the ability to use information types as adults do. Based on certain information types, attributions required the use of only a simple covariation schema which even young children were able to do. Other information types required the use of a more complex discounting principle which only older subjects were able to do.
Duration: 1975-completed.
Publications: Reprints of papers are available from the investigator.

39-DB-4 THE DEVELOPMENT OF SPATIAL ORIENTATION IN INFANCY

Investigator(s): Linda P. Acredolo, Ph.D., Assistant Professor, Department of Psychology, University of California, Davis, California 95616.
Purpose: To determine at what developmental stage an infant becomes able to maintain its orientation despite a simple movement through a large-scale space; e.g., a room.
Subjects: Infants, ages 6, 9, 11, and 16 months.
Methods: The infants were trained to expect an event to occur at a window to their left or right. An identical window was located opposite the first window. Once the expectation was established, the infants were moved so that their view of the room was reversed. A large star surrounded the event window for half the subjects. The direction (window) toward which infants turned in anticipation of the event indicated whether they were coding the location egocentrically or objectively.
Findings: At 6, 9, and 11 months, infants fail to maintain their orientation despite the star at the correct window. Instead, they repeat the head turn they had associated with the event during training. Finally, at 16 months, the infants respond to the correct window, indicating the use of an objective frame of reference.
Duration: September 1974-completed.

39-DB-5 COGNITIVE DEVELOPMENT OF SYNANON CHILDREN

Investigator(s): Linda Burke, Ph.D., Psychologist, Synanon Research Institute, Synanon Foundation, Inc., P. O. Box 786, Marshall, California 94940.
Purpose: To determine what changes in cognitive performance occurred in a group of children reared from birth in a peer-communal environment.
Subjects: Eight boys and girls, ages 3 to 4, who had been reared communally from birth at Synanon.
Methods: Starting at 18 months, the children participated in an accelerated program that incorporated structural workshops and classrooms. Reading readiness curriculum began at 3 to 3½ years of age. The children were given the McCarthy Scales of Children's Abilities

when they were 3 and 4 years old and were retested with the same test 1½ years later. Means and standard deviations were computed, and an analysis of variance was done.
Findings: The increase in the children's IQ scores was significantly above the average. At the initial testing, when the children were 3 and 4 years old, they obtained a mean IQ of 105. When they were retested 1½ years later, they had a mean IQ of 116.
Duration: February 1975-completed.
Publications: Information is available from the investigator.

39-DB-6 VISUAL PERCEPTION OF NUMBER AND NUMBER CONSERVATION AND RAGGED CONSERVATION OF NUMBER

Investigator(s): Walter J. Sanders, Ph.D., Professor, Department of Elementary Education, Indiana State University, Terre Haute, Indiana 47809.
Purpose: To determine the correlation between visual perception and conservation; to investigate the influence of perceptual training on conservation; and to investigate the development of conservation at the critical stage between no observed conservation and total conservation and relate these findings to visual perception of number.
Subjects: 94 boys and girls: 26, age 3; 43, age 4; and 25, ages 6 to 8, in five classes.
Methods: The subjects were tested individually for conservation of number using a Piagetian task in which the number of objects varied from two to ten, depending on the child's response. Each child was also shown 20 dot cards, one at a time, and was encouraged to say how many dots there were as soon as the card was flashed. The number of dots on the cards varied from zero to ten. Half of the cards had dots that were randomly scattered, and the rest had dots grouped as on playing cards.
Findings: There seems to be a positive correlation between visual perception and conservation. Partial conservation does occur, and it is related to visual perception.
Duration: September 1975-January 1978.

39-DB-7 ENDOCRINOPATHY AND SPATIAL FUNCTIONING

Investigator(s): Joanne Rovet, Ph.D., Research Fellow; and C. Netley, Ph.D., Chief Psychologist, Psychology Department, Hospital for Sick Children, 555 University Avenue, Toronto, Ontario, Canada M4R 1R4.
Purpose: To study the cognitive consequences of abnormalities in children's growth and development, in order to understand the relations between chromosomes, hormones, and maturational rates on the development of spatial cognitive processes.
Subjects: As many children as possible across a wide age range, who have problems in growth and development as a result of endocrine dysfunctions or chromosomal abnormalities.
Methods: Subjects are extensively tested on a variety of cognitive and IQ tests. These test results are examined as a function of endocrinopathy, hormone levels, lateralization, sex, and development.
Findings: There appear to be marked impairments in spatial functioning in girls, and in verbal functioning in boys. These impairments interact with the degree of cerebral asymmetry.
Duration: June 1976-June 1978.

39-DB-8 NATURALISTIC STUDIES OF BLACK CHILDREN'S COGNITIVE AND SOCIAL BEHAVIOR IN SCHOOL AND COMMUNITY SETTINGS

Investigator(s): Dalton Jones, Ph.D., Assistant Professor, Department of Psychology, University of Massachusetts, Amherst, Massachusetts 01002.
Purpose: To analyze the effects of social context on cognitive functioning.
Subjects: 24 black boys and girls, ages 4 to 6, half high and half low achievers.
Methods: Subjects were administered standard IQ and achievement tests, and teacher evaluations were collected. Videotaped recordings were made of the children's free play on playgrounds and in classrooms. Observational data were also collected via (1) a science activity called "Batteries and Bulbs," (2) problem solving games which used two- and three-dimensional classifications of attribute matrixes and venn diagrams, and (3) word matrixes which attempted to differentiate inductive vs. deductive problem solving strategies.
Duration: September 1973-August 1977.

39-DB-9 DEVELOPMENT OF ANALOGIC REASONING

Investigator(s): Robert J. Wright, Ph.D., Assistant Professor, Department of Education, Beaver College, Glenside, Pennsylvania 19038; and Jeanette Gallagher, Ph.D., Associate Professor, Temple University, Philadelphia, Pennsylvania 19122.
Purpose: To determine the developmental stages in the understanding of analogies; and to provide a Piagetian explanation for such a developmental process.
Subjects: Approximately 400 girls and boys in grades 4 through 7; 10 percent were minority students.
Methods: Data included subjects' performance on the Written Analogical Reasons Test (WART) and reported strategies used to solve test items elicited by asking subjects to explain how they solved test items. The effect of IQ in analysis of these data was controlled by a covariance technique.
Duration: Spring 1975-Fall 1977.

39-DB-10 RECONSTRUCTION IN CHILDREN'S RECALL OF CONNECTED DISCOURSE

Investigator(s): Nancy A. Piro, M.A., Teaching Fellow, Department of Psychology, Kent State University, Kent, Ohio 44242.
Purpose: To investigate the effects of type (consistent or inconsistent) and timing of ancillary information on recall of originally presented discourse.
Subjects: Seven fifth grade classes of boys and girls, ages 10.5 to 12.
Methods: Subjects heard two short stories which they were asked to recall immediately and 2 weeks after presentation. There were two experimental groups (consistent and inconsistent ancillary information) and a control group. Recall errors were analyzed in a 4 (immediately after, 1 week after, 2 weeks after, and control) X 2 (consistent and inconsistent information) analysis of variance.
Findings: When given inconsistent information, children's recall of the original shows predicted changes which make the ancillary information consistent with the original.
Duration: April 1977-July 1977.

39-DB-11 CONSERVATION AS A FUNCTION OF DECENTRATION

Investigator(s): Roy Gladstone, Ph.D., Professor, Department of Psychology, Oklahoma State University, Stillwater, Oklahoma 74074.
Purpose: To establish a set of norms for aspects of the Piagetian water jar problem; and to test Piagetian centration (stage) theory against a continuous growth theory.
Subjects: Approximately 20 children at each age from 4 to 10.
Methods: The procedure consisted of (1) asking the child to predict how high water will come when it is poured from one container into a container with a smaller diameter; (2) screening the second container, pouring the water in, and asking the conservation question; (3) unscreening the second container and asking the conservation question; and (4) if the child predicted a height that was quite different from the actual height, pointing it out and asking the child to explain what went wrong. The relation between developmental norms of the prediction and types of conservation was analyzed. Analyses were done to determine whether a theory of continuous development or a stage (decentration) theory best predicted the results.
Duration: 1974-1978.

39-DB-12 OVER TIME EFFECTS AND INTERACTIONS OF FAMILY AND SCHOOL AUTHORITY STRUCTURES AND CHILD DEVELOPMENT

Investigator(s): Joyce L. Epstein, Ph.D., Research Scientist and Assistant Professor; and James M. McPartland, Ph.D., Principal Research Scientist and Associate Professor, Department of Social Relations, Center for Social Organization of Schools, Johns Hopkins University, 3505 North Charles Street, Baltimore, Maryland 21218.
Purpose: To document how different family authority structures influence cognitive and noncognitive development, especially during preadolescence and adolescence; and to compare the influence of family with the influence of the school in selected student outcomes.
Subjects: 7,300 students in grades 5 through 12 in 39 elementary and secondary schools in Maryland. Subjects represented a wide range of socioeconomic background characteristics.
Methods: Data were collected in surveys of students in 1973 and 1974. Schools included open and traditional instructional programs; families included open and traditional childrearing approaches. Multiple regression analysis was the primary analytic technique used to study interaction effects and partitioning of variance.
Findings: Significant main effects show that participation in family and school decisions is associated with more positive personality development and school coping skills throughout adolescence. Family socioeconomic status is uniquely important only for student college plans. No interaction effects of school and family characteristics are consistently significant.
Duration: June 1976-June 1977.
Cooperating group(s): (1) Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare. (2) National Institute of Education; U. S. Department of Health, Education, and Welfare.
Publications: Two working papers are available from the investigator: (1) Epstein, J. L. and McPartland, J. M. Family and school interactions and main effects on nonacademic outcomes. (2) Epstein, J. L. and McPartland, J. M. The influence of family and school environments on the development of student outcomes and sex differences.

39-DB-13 FACTORS RELATED TO COGNITIVE DEVELOPMENT IN A CHANGING AFRICAN CULTURE AND A CULTURALLY PORTABLE INVENTORY OF COGNITIVE DEVELOPMENT

Investigator(s): Lynne A. Streeter, Ph.D., Research Psychologist; and Thomas K. Landauer, Ph.D., Research Psychologist, Bell Laboratories, 600 Mountain Avenue, Murray Hill, New Jersey 07974; and John W. M. Whiting, Ph.D., Department of Anthropology, Harvard University, Cambridge, Massachusetts 02138.

Purpose: To develop a portable cross-culture test of cognitive development; and to relate cognitive development to a number of demographic variables, such as family size, birth order, and socioeconomic status to determine whether patterns that are found in stable western cultures are obtained in a nonwestern culture undergoing rapid social change.

Subjects: Approximately 450 Kikuyu children, ages 4 to 9.

Methods: A test battery of four subtests was developed (from an original 17) on the basis of the strength of their correlation with chronological age. The test battery could be recalibrated in another culture and could be administered by relatively unsophisticated testers in approximately 15 minutes. Subtests included (1) body parts test: the child is given the name of a body part and is required to locate it on his or her own body; (2) animal naming test: the child names as many animals as possible in one minute; (3) auditory integration: common words are presented syllable by syllable with a delay of 3 seconds between syllables, and the child supplies the word using a normal speaking rate; and (4) embedded figures: the child attempts to find a triangle that is embedded in pictures of coherent scenes or meaningful objects. The test battery was administered to the subjects, and results were correlated to family variables.

Findings: Correlations between family constitution and the cognitive development index failed to show patterns that are typical in stable western societies; neither family size nor birth order was correlated with cognitive development.

Duration: 1973-1978.

Cooperating group(s): University of Nairobi, Child Development Research Unit, Nairobi, Kenya.

39-DB-14 A CODE IN THE NODE: THE USE OF A STORY SCHEMA IN RETRIEVAL

Investigator(s): Jean M. Mandler, Ph.D., Professor, Department of Psychology, University of California, San Diego, La Jolla, California 92093.

Purpose: To study the way in which children encode and retrieve stories.

Subjects: 24 each of 2nd, 4th, and 6th graders and adults—approximately equal numbers of males and females.

Methods: Subjects heard two kinds of stories: (1) standard stories generated according to the story grammar outlines in Mandler & Johnson (1977) and (2) interleaved versions of the same stories which violated the posited underlying structure. Quantity, quality, and sequencing of recall were measured.

Findings: All three measures of recall were affected by story type. In particular, interleaved stories tended to be recalled in canonical form. This effect was stronger for children than for adults.

Duration: November 1976-June 1977.

Cooperating group(s): (1) University of California, San Diego, Center for Human Information Processing. (2) National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare.

Publications: A paper presented at the Society for Research in Child Development, New Orleans, March 1977.

39-DB-15 LOGICAL REASONING IN PRESCHOOL CHILDREN

Investigator(s): Langdon E. Longstreth, Ph.D., Professor, Department of Psychology, University of Southern California, Los Angeles, California 90007.
Purpose: To determine the extent of reasoning abilities in normal and retarded preschool children.
Subjects: Normal and retarded children, ages 3 to 5.
Methods: Children were trained on pairs of objects with respect to a transitive relationship; then tested on nonadjacent objects to measure transitive reasoning. Both concrete and abstract dimensions were used.
Findings: Both retarded and normal children were capable of abstract reasoning.
Duration: September 1976-completed.

39-DB-16 SEX DIFFERENCES IN SPATIAL ABILITY

Investigator(s): Gustav Jahoda, Ph.D., Head, Department of Psychology, University of Strathclyde, Turnbull Building, 155 George Street, Glasgow, Scotland G1 1RD.
Purpose: To identify aspects of spatial ability that show sex differences.
Subjects: Primary school children, ages 6 to 10: one sample of 72 children in Glasgow and 72 in Ghana already completed, and another Glasgow sample of 60 children presently being tested.
Methods: A series of tasks was administered to the subjects. They were derived from Piaget and Inhelder (Mental Imagery in the Child) and specially designed to sample various key features of spatial ability, including 2D and 3D transformations and mental rotation. Analysis of variance is being used to assess the data.
Findings: Similar differences have been found on certain tasks in both cultures.
Duration: June 1975-June 1978.
Cooperating group(s): U. S. Social Science Research Council.

39-DC-1 ATTENTION AND PREFERENCE: DEVELOPMENTAL CHANGES IN DIMENSIONAL DOMINANCE

Investigator(s): Richard B. May, Ph.D., Associate Professor, Department of Psychology, University of Victoria, Victoria, B. C., Canada V8W 2Y2.
Purpose: To estimate how children differentially respond to different attributes of a stimulus, how this differential response changes with age and as a function of specific training, and how both of these relate to learning.
Subjects: 160 children: 80 boys and 80 girls, ages 4 to 11. Generally, subjects were normal middle class children from public schools and day care centers.
Methods: Multidimensional scaling of dimensional preferences was carried out using a technique generated by Seitz (*Child Development*, 1971, 42, 1701-1720) and developed by Fernandez (*Journal of Experimental Child Psychology*, 1976, 21, 175-189). Children were presented stimulus cards with three circles that varied in brightness, size, and orientation of a pointer. They were asked which two circles were the same or most alike. There were 28 cards used by Fernandez, 10 free-choice cards, and three subsets of forced choice cards.

Findings: The mean number of logical forced choice responses to the brightness dimension was relatively high for all age groups, but mean logical responses for size and orientation were low for younger children and increased uniformly across age. The percentage of children selecting brightness on free choice decreased with age, while the percentage selecting orientation increased with age. (See *Research Relating to Children, Bulletin 30,* March-August 1972, Study 30-DC-5, p. 53.)
Duration: May 1975-completed.
Cooperating group(s): (1) National Research Council of Canada. (2) Greater Victoria School Board. (3) British Columbia Department of Human Resources-Day Care Centers.
Publications: (1) May, R. B.; Oliver, P; and Fernandez, D. Dimensional dominance hierarchies and the matching of letters and words. *Journal of Reading Behavior,* 1976, 8(3), 321-334. (2) Micallef, C. and May, R. B. Visual dimensional dominance and haptic form recognition. *Bulletin of the Psychonomic Society,* January 1976, 7(1), 21-24. (3) May, R. B. and Fernandez, D. Dimensional dominance and extradimensional shifts. *Perceptual and Motor Skills,* 1974, 45, 127-133.

39-DC-2 ATTENTION MECHANISMS IN HYPERACTIVE AND LEARNING DISABLED BOYS

Investigator(s): Curtis W. McIntyre, Ph.D., Chairman and Associate Professor; and Michael Murray, Ph.D., Adjunct Professor, Department of Psychology, Southern Methodist University, Dallas, Texas 75275.
Purpose: To compare attentional processes in hyperactive, learning disabled, and normal boys.
Subjects: Boys, ages 6 to 11, in four groups: hyperactive-nonlearning disabled; hyperactive-learning disabled; nonhyperactive-learning disabled; and normal controls.
Methods: Span of apprehension and visual search techniques are used to compare attentional processes of the four groups. A set of four experiments is currently underway.
Findings: There is a reduced span of apprehension in hyperactive boys.
Duration: September 1976-June 1978.
Cooperating group(s): Dean Memorial Learning Center, Dallas, Texas.

39-DC-3 THE EFFECT OF RHYME ON PRESCHOOL CHILDREN'S RETENTION OF THEMATIC INFORMATION

Investigator(s): Donald S. Hayes, Ph.D., Assistant Professor, Department of Psychology, University of Maine, Orono, Maine 04473.
Purpose: To examine the effect of presenting semantic information (i.e., story themes) in a rhyming format as compared to a prose format.
Subjects: Preschool children, ages 3½ to 5. Sex is counterbalanced in the study design.
Methods: Subjects were given both recall and recognition tests of their retention of information presented in rhyming and prose formats. Format was a between subjects variable. Ratings of each nursery rhyme and prose story were assessed.
Duration: March 1977-completed.

39-DC-4 REHEARSAL STRATEGIES AND METAMEMORY

Investigator(s): Ellin Kofsky Scholnick, Ph.D., Professor; and Cindy Howe, A.B., Department of Psychology, University of Maryland, College Park, Maryland 20742.
Purpose: To test the relation between rehearsal strategies, memory monitoring, and recall.
Subjects: 54 boys and 54 girls: 36 each from second and fourth grades and from college, all from middle class suburban backgrounds.
Methods: The variables analyzed included recall of a 12-item picture list, extent of out-loud rehearsal, and predictions of recall of items before and after recall. Analyses attempted to determine whether items that have been rehearsed more are those with which the subject is better able to predict recall or better able to monitor memory.
Duration: February 1977-September 1977.

39-DC-5 THE EFFECT OF PRESTIGE OF THE MODEL ON LEARNING BY IMITATION

Investigator(s): Yosef Geshuri, Ph.D., Associate Professor, Psychology/Guidance Department, Northwest Missouri State University, Maryville, Missouri 64468.
Purpose: To determine whether the discriminative observational learning of first and second graders would be facilitated by a model whose prestige status has been enhanced or decreased by the teacher's praise.
Subjects: 20 first and 20 second graders: 10 boys and 10 girls in each grade, who were enrolled in the Northwest Missouri State University Laboratory School.
Methods: Subjects observed a model perform errorlessly on a discrimination task. The model's prestige was manipulated by the teacher, who either praised or reprimanded the model after the first model exposure. The model then performed a second time. Subjects' performance on the discriminative task was assessed after each modeling exposure, the first being the baseline; the second, the test measure. Performance was evaluated across conditions (high vs. low prestige) and across trials.
Findings: Subjects observing a high prestige model performed more accurately than those who observed a low prestige model. High prestige condition subjects also performed more accurately on the second trial (after second model exposure) than on the first. Second graders performed more accurately than first graders.
Duration: January 1975-completed.
Cooperating group(s): Horace Mann Lab School.
Publications: *The Northwest Missouri State University Studies,* 1976, 24(4), 3-15.

39-DC-6 THE DEVELOPMENT OF IMITATIVE BEHAVIOR

Investigator(s): Yosef Geshuri, Ph.D., Associate Professor, Psychology/Guidance Department, Northwest Missouri State University, Maryville, Missouri 64468.
Purpose: To investigate those variables involved in the process of learning to imitate which are spatially and temporally contiguous and contingent upon reinforcement, particularly early mother-infant response matching.
Subjects: Four male and three female infants, ages 6 to 11 months; and their mothers, all of whom were homemakers.
Methods: Mother-baby interactions were first observed at home during ordinary caretaking periods. Matched verbal and motor behaviors were scored by two independent observers.

A test for imitation was administered to the babies 18 months later, and the extent of their imitation was correlated with the amount of mother-baby response matching.

Findings: Imitation was significantly correlated with early mother-infant matching responses.

Duration: March 1975-January 1977.

Publications: Information is available from the investigator.

39-DC-7 THE INFLUENCE OF DIFFERENTIAL CRITERION LEVELS ON THE VISUAL DISCRIMINATION LEARNING OF KINDERGARTEN CHILDREN

Investigator(s): Henry G. Timko, Ed.D., Associate Professor, Faculty of Education, University of Victoria, Box 1700, Victoria, British Columbia, Canada.

Purpose: To determine the effect of criterion level on learning involving two discrimination modes (simultaneous and successive) and two tasks (initial visual discrimination and a later perceptual/auditory task).

Subjects: 40 kindergarten children tested during the second month of the school year.

Methods: Two criterion levels, two discrimination modes, and two learning tasks were compared in a 2 x 2 x 2 analysis of variance. The task level factor was a repeated measure. The dependent variable for all conditions was number of trials to criterion.

Findings: Simultaneous discrimination mode was significantly superior to the successive discrimination mode. Differences in criterion level significantly influence successive discrimination learning, but not simultaneous discrimination learning.

Duration: September 1976-March 1977.

39-DC-8 MEMORY AND REASONING IN CHILDREN

Investigator(s): Ellin Kofsky Scholnick, Ph.D., Professor; and Janet W. Johnson, Assista[illegible] Professor, Department of Psychology, University of Maryland, College Park, Mary[illegible]0742.

Purp[illegible] To test whether recall and reasoning in children are related.

Subjects: 48 third and fourth grade children attending an urban school; and 24 college students.

Methods: Subjects were divided into four groups on the basis of their performance on two Piagetian tasks. There were four class inclusion questions of the form: Mary had three cats and two dogs. Did she have more pets or more cats? The four seriation questions were of the form: Mary had more cats than dogs and more dogs than rabbits. Did she have more rabbits or more cats? Based on their performance, the subjects were placed into one of four categories: passed neither set of questions (less than three right on either); passed only seriation; passed only class inclusion; or passed both. They then heard sets of stories, half of which told class inclusion material, and half of which told seriation material. In each story there were an explicit premise and an implicit inference. (E.g., Susie has seven rings and three necklaces. She has more rings than necklaces is an explicit premise. That she has more jewelry than rings is a class inclusion inference implicit in the story.) After hearing a set of stories, the children were asked to designate which sentences of a group they thought they heard and which they did not hear. The choices were true or false premises and true or false inferences. (E.g., a true premise is that Susie has more rings than necklaces, while a false inference is that she has more rings than jewelry.) If memory and reasoning skills are

linked, it is expected that children who mastered class inclusion would recognize more true premises and true inferences than those who did not know class inclusion, and that the includers would also recognize fewer false premises and inferences as having been said. Similarly, seriators should recognize true seriation premises and inferences and reject false premises and inferences more than nonseriators. Finally, it was predicted that class inclusion would produce more striking results because it is less dependent on remembering premises since there is always more in the inclusion than included class.
Duration: Spring 1976-Fall 1977.
Cooperating group(s): Washington, D. C. Public Schools.

39-DC-9 MEMORY FOR PROSE: DEVELOPMENT OF MNEMONIC STRATEGIES

Investigator(s): Daniel J. Christie, Ph.D., Assistant Professor, Department of Psychology, Ohio State University, Marion, Ohio 43302.
Purpose: To explore the possibility that deliberate mnemonic strategies are involved in children's retention of meaningful prose passages; and to determine if older children use the high order relations in prose more efficiently than younger children.
Subjects: 40 children from first grade and 40 children from fourth grade. The mean age for the two grade levels was 6.8 and 9.8 respectively.
Methods: Two passages, each of which contained 20 sentences, were employed. The sentences within the passages were difficult to comprehend without the children's knowledge of the context within which the story took place. A 2 x 2 x 2 factorial design with two dependent measures was employed. The factors were (1) context: presented vs. withheld; (2) instructions: intentional (children who were informed about the subsequent memory task) vs. incidental (children not informed); and (3) grade: first vs. fourth graders. Dependent measures consisted of a reconstruction and recognition test.
Findings: Analysis of variance indicated that older children recognized and reconstructed a greater number of sentences than younger children. The presentation of contextual information facilitated older as well as younger children's reconstruction and recognition scores. For reconstruction scores, the instructional factor interacted with grade, so that the relative impact of the instructional manipulation was greater for older than younger children. The absence of a context by grade interaction indicates that older as well as younger children very efficiently use their semantic memory system to retain the essential features of prose. The significant grade by instruction interaction indicates that older children employ deliberate mnemonic strategies when preparing to reconstruct meaningful prose.
Duration: 1975-continuing.

39-DC-10 DEVELOPMENT OF STRATEGIES OF REMEMBERING IN BLACK CHILDREN

Investigator(s): Fariyal Ross-Sheriff, Ph.D., Assistant Professor, Department of Social Work, Howard University, Washington, D. C. 20059.
Purpose: To identify strategies for information storage and retrieval used by good and poor learners in elementary schools.
Subjects: 80 black children selected randomly from kindergarten, 1st, 3rd, and 5th grades of an elementary school in Washington, D. C.

Methods: Information was collected by an interview schedule consisting of general and specific school related questions and problems dealing with strategies of information storage and retrieval. School teachers were involved in developing relevant school related questions and in the interpretation of research results. Apart from the interview, teachers were asked to classify subjects as good, average, or poor learners. The responses on each interview question were tabulated by educational level and by ability groups as identified by the teachers. Data were then compared by nonparametric statistics to indicate developmental changes and relationships between strategies used and general academic ability. The results of this research will provide the basis for an experimental research project that will seek relevant inputs to the development of memory strategies and skills for scholastic achievement.
Duration: September 1976-August 1977.
Cooperating group(s): (1) Shephard School. (2) Howard University, Faculty Research Grant and Spencer Grant.

39-DD-1

AGREEMENT AMONG RATERS ON THREE EXPERIMENTAL TESTS: SUBSTITUTE USES, COMBINING OBJECTS, NEW USES

Investigator(s): Reuben R. Rusch, Ph.D., Director; and Judy Steiner, M.A., Graduate Assistant, Educational Research and Service Center, State University of New York, Milne 122, 440 Washington Avenue, Albany, New York 12203.
Purpose: To examine the problems of scoring and determine the degree of agreement among independent raters.
Subjects: 115 boys and girls in two sixth and two seventh grade classes; and graduate students in an educational psychology class.
Methods: The Substitute Uses Test, Combining Objects Test, and New Uses Test were administered to sixth and seventh grade students. These tests were scored by two independent graduate student raters. After recording independent scores, raters compared scores, discussed problems of scoring, and made recommendations.
Findings: There was considerable agreement among raters, but lack of agreement between parts of the same test (low internal validity).
Duration: May 1976-February 1977.

39-DD-2

A FACTOR ANALYTIC STUDY OF FIELD DEPENDENCE, SEMANTIC REDEFINITION, SPONTANEOUS FLEXIBILITY, AND CONVERGENT PRODUCTION OF SEMANTIC TRANSFORMATIONS

Investigator(s): Reuben R. Rusch, Ph.D., Director; and Judy Steiner, M.A., Graduate Student, Educational Research and Service Center, State University of New York, Milne 122, 440 Washington Avenue, Albany, New York 12203.
Purpose: To ascertain whether the factors assessed by five instruments are similar.
Subjects: 115 boys and girls in two sixth grade and two seventh grade classes.
Methods: Subjects were administered the Rod and Frame Test, Combining Objects Test, Substitute Uses Test, Gestalt Transformation Test, and the New Uses Test. Data were factor analyzed.
Duration: May 1976-February 1977.

57

39-DD-3 FACTOR ANALYTIC STUDY OF THE MCCARTHY SCALES OF CHILDREN'S ABILITIES

Investigator(s): Michael J. Wiebe, Ph.D., Coordinator; and Ernest O. Watkins, Ph.D., Director, Institute of Mental and Physical Development, Texas Woman's University, Box 23029, TWU Station, Denton, Texas 76204.
Purpose: To present an independent sample of children who have been assessed with the McCarthy Scales of Children's Abilities (MSCA) with factor structure of the instrument based upon sex differences or similarities.
Subjects: 200 middle class girls and boys, ages 3 to 4½, evenly divided by sex in an age stratified random sample.
Methods: MSCA raw scores for each subtest were factor analyzed using the statistical package BMD 08M.
Findings: Preliminary findings indicate significant differences between male and female subjects in both number of factors elicited and composition of factors obtained.
Duration: September 1976-September 1977.

39-DD-4 COMPARISON OF THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN-R AND THE CULTURE FAIR INTELLIGENCE TEST IN A JUVENILE POPULATION

Investigator(s): Anita L. Smith, B.S., Administrative Technician; J. Ray Hays, Ph.D., Research Specialist; and Kenneth S. Solway, Ph.D., Clinical Psychologist, Texas Research Institute of Mental Sciences, 1300 Moursund, Houston, Texas 77030.
Purpose: To determine the relative cultural bias of each test; and to determine if the Culture Fair Inventory (CFI) can be used as a valid estimate of IQ by comparing it with the more widely used Wechsler Intelligence Scale for Children-R (WISC-R).
Subjects: 51 adolescent girls and boys, ages 12 to 17, who were in the juvenile justice system.
Methods: Data were collected from the CFI and the WISC-R tests administered as part of a battery of tests during a required testing session. Pearson r and analysis of variance with Neuman Keuls test for individual differences were used to analyze the data. Each subject was his own control for correlational analysis. Subjects were divided into white and minority groups for cultural bias analyses.
Findings: The CFI scores correlate significantly with WISC-R scores: full scale .76; verbal .71; and performance .70. The WISC-R scores for the two groups were significantly different from each other. Although the CFI removes some bias, white scores were still higher than minority scores on both tests, indicating there is still some bias.
Duration: August 1976-April 1977.
Cooperating group(s): Harris County Juvenile Probation Department.

39-DE-1 A CROSS-CULTURAL, CHRONOLOGICAL, DEVELOPMENTAL STUDY OF THE NAMING AND CONCEPTUALIZATION OF SIMPLE GEOMETRIC SHAPES AND SPATIAL RELATIONS

Investigator(s): Sandor B. Brent, Ph.D., Associate Professor, Department of Psychology, Wayne State University, Detroit, Michigan 48202.

Purpose: To discover and describe the process by which geometric and spatial concepts develop as a function of level of formal geometric education, chronological age, and cultural background.
Subjects: Detroit girls, ages 16 to 20, at four levels of geometric sophistication; Canadian Ojibaway Indian children; Detroit boys and girls, ages 8, 12, 16, and 20; and a comparable sample of Japanese school children.
Methods: In a two-subject communications game, one subject of each pair had to describe each of a set of 11 geometric figures, so that a second subject could successfully pick the same figures from a comparable set. Of primary interest was an analysis of the concepts underlying the language used to describe these figures.
Findings: There appears to be an empirically validated, developmentally ordered set of categories for describing geometric figures, and an empirically validated non-Euclidean geometry used at developmentally earlier levels of geometric conceptualization.
Duration: March 1966-September 1978.
Cooperating group(s): (1) Job Corps Research Contract; Office of Economic Opportunity; U. S. Department of Health, Education, and Welfare. (2) National Science Foundation.

39-DE-2 DEVELOPMENT OF THE TIME CONCEPT: DIFFERENTIATING CLOCK OR CALENDAR TIME DURATIONS FROM APPARENT DURATION

Investigator(s): Alida Westman, Ph.D., Associate Professor, Department of Psychology, Eastern Michigan University, Ypsilanti, Michigan 48197.
Purpose: To discover (1) the age at which children distinguish between clock or calendar time durations and subjective time durations; (2) the effects upon estimated subjective duration of the emotional tone of events which happen during the duration, and to whom these events happen; and (3) how long a duration people of various ages can think about.
Subjects: 1,401 lower middle class children in kindergarten, 2nd, 4th, and 6th through 12th grade; 194 college students; 180 college professors; and 36 patients, older than 18 and younger than 40, in an intake ward of Ypsilanti Mental Hospital.
Methods: Subjects rated stories about common events each representing (1) a different time duration (30 seconds, 15 minutes, 30 minutes, an hour, a day, weekend, week, month, season, year, 2 years, 4 years); (2) an emotional tone (pleasant, unpleasant, neutral); and (3) an event happening either to self or to someone else. Stories were rated on a 5-point scale for how long the event lasted on the clock (or calendar) and for how long the event seemed to last to the person experiencing the event.
Findings: Most kindergartners think in terms of vague groupings of durations: brief things (like the taste of a cookie or a pill), longer things (which last an hour, day, weekend, or week), and very long things (month, year, season). Most second graders are beginning to understand that unpleasant things seem to last longer than they really take, and that pleasant things seem to last less long than is really the case. With age, longer time periods can be thought about, although a month is a very difficult period to think in terms of until the person in young adulthood has experienced monthly events; e.g., rent payments. Emotional stress leads to changes in perception of time. Different people use different conceptual strategies, only one of which can be labeled regression.
Duration: Winter 1975-Spring 1977.
Cooperating group(s): (1) South Lyon High School. (2) Lincoln Consolidated Schools. (3) Ypsilanti State Mental Hospital.

39-DF-1 METACOGNITION AND MOTHER-CHILD INTERACTION

Investigator(s): James V. Wertsch, Ph.D., Assistant Professor, Department of Linguistics; and Joan McLane, Instructor, Department of Education, Northwestern University, Evanston, Illinois 60201.

Purpose: To study how mothers provide much of the metacognitive processes involved when they help their child try to solve various problems.

Subjects: 30 mother-child dyads from white, middle class families: 10 families include a 2½-year old; 10, a 3½-year old; and 10, a 4½-year old. Half of the children were male, half female.

Methods: Mothers were asked to help their child carry out a series of tasks such as making a puzzle or building a block tower in accordance with a model. Videotapes of these sessions were analyzed in accordance with a coding scheme that was developed on the basis of a hierarchical scheme of interaction categories developed from theories in language philosophy and the work of L. S. Vygotsky.

Duration: March 1977-August 1977.

Cooperating group(s): Northwestern University, Office of Research and Sponsored Programs.

39-DF-2 ANALYSIS OF THE EFFECTS OF ORGANIZING EXPERIENCE UPON SOLVING CLASS-INCLUSION PROBLEMS IN YOUNG CHILDREN

Investigator(s): Juliette Relihan, Ph.D., Consultant, Greer School, Hope Farm, Millbrook, New York 12545.

Purpose: To determine if training young children to use a chunking (or organizing) strategy, which recodes the interaction between groupings as required of operations in class-inclusion, can help children to solve class-inclusion problems.

Subjects: 12 boys and 12 girls in kindergarten (mean age 5 years 9 months); and the same number of children in first grade (mean age 6 years 10 months) from a middle class community 90 miles from New York City.

Methods: Subjects were pretested to determine their level of classification skills and randomly assigned to an experimental or a control group. All were trained for 4 days in various higher level classification skills. The experimental group was taught a mnemonic designed to facilitate their remembrance of the material presented through the use of a specific organizing technique. A chi-square analysis was made to determine whether the performance of the two groups differed significantly from performance expected by chance.

Findings: Children in the experimental group differed significantly from chance at the .01 level of significance. All children in this group were able to solve the higher level tasks after training and maintained performance during a 4- to 6-week interval. Control subjects did not advance.

Duration: March 1976-completed.

Cooperating group(s): Millbrook Elementary School.

Publications: A paper presented at the American Educational Research Association, San Francisco, California, 1976.

39-DG-1 AGE AND FIGURE-GROUND PERCEPTION

Investigator(s): Leonard Zusne, Ph.D., Professor, Department of Psychology, University of Tulsa, Tulsa, Oklahoma 74104.
Purpose: To provide empirical support for the conceptualization of figure-ground as a planar continuum that includes embedded figures, reversible figure-ground, as well as random noise.
Subjects: 80 children: 20 from each of the following age groups: 4 to 5; 8 to 9; 11 to 12; and 18 to 22, equally divided by sex.
Methods: An experimental embedded figures test consisting of 15 stimuli was individually administered to subjects. Search time up to 3 minutes was measured in 1-second intervals. Mean search times per design were recorded and used to construct three-dimensional data space.
Findings: The tilt of each data plane has been established. Decreasing age located data planes higher in the third dimension with longer latencies.
Duration: Fall 1976-March 1977.

39-DH-1 EARLY LANGUAGE ASSESSMENT SCALE

Investigator(s): J. Ronald Lally, Ed.D., Project Director; and Alice S. Honig, Ph.D., Program Director, Family Development Research Program, College of Human Development, Syracuse University, 100 Walnut Place, Syracuse, New York 13210.
Purpose: To discover whether a high quality day care program for infants that places emphasis on language facilitation can improve the decoding and communication skills of disadvantaged infants compared to infants of a low income contrast group and of infants from a high education contrast group.
Subjects: Infants, ages 6, 12, 18, 24, and 30 months, enrolled in the Syracuse University Children's Center; and infants, ages 12, 18, and 30 months, from low income and high education cross-sectional contrast groups.
Methods: Toys, facial expressions, social games, masks, tones, questions, verbal models for imitation, and pictorial materials were used to elicit vocal and verbal responses and appropriate gestural responses from infants.
Findings: Although the scores of the three groups of infants do not seem to differ initially, by 30 months the experimental infants from the enrichment program are achieving scores closer to high education group infants and above the scores of low income contrast infants.
Duration: July 1974-June 1977.
Cooperating group(s): Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare.

39-DH-2 A COMPARATIVE STUDY OF THE LANGUAGE ACQUISITION OF RURAL WYOMING INDIAN, CHICANO, AND ANGLO KINDERGARTEN CHILDREN

Investigator(s): Wesley Little, Ed.D., Associate Professor; and Max Contreras, M.S.E., Instructor, Department of Elementary/Early Childhood Education, College of Education, University of Wyoming, 111 Graduate Hall, Laramie, Wyoming 82070.
Purpose: To measure language deficiency of children upon entering kindergarten and after one term of kindergarten.

Subjects: 90 children: 15 male and 15 female each of Indian, Chicano, and Anglo children, ages 5 to 6, selected from eight rural Wyoming communities. All subjects reside in rural communities as defined by the U. S. Department of Health, Education, and Welfare; have lived in Wyoming for at least 4 years; and have no language learning problems.

Methods: Language performance was measured with the Test for Auditory Comprehension of Language (TACL), an instrument with norms appropriate for use with low socioeconomic as well as middle socioeconomic children. With the TACL, the child is not required to respond orally but needs only to point to the appropriate one of three pictures which corresponds to a word, phrase, or sentence spoken by the experimenter. The study design closely resembles the *non-equivalent control group design* discussed in the Campbell and Stanley designs. Demographic and socioeconomic data were gathered for each student to determine the make-up of each classroom and for possible use in later correlation analyses of the overall data. Mean scores will be computed for each different variable in the pre- and posttests.

Duration: July 1977-April 1978.

Cooperating group(s): (1) Wyoming Public School Districts. (2) Wind River Indian Reservation Schools. (3) Wyoming State Department of Education.

Publications: Information is available from the investigators.

39-DH-3

PHONETIC CONTEXT AS A DEVELOPMENTAL AND THERAPEUTIC CONCEPT FOR MANAGEMENT OF ARTICULATION DISORDERS: PHASE II

Investigator(s): Ida Stockman, Ph.D., Project Director; and Lillie B. Wharton, Research Assistant, Center for the Study of Handicapped Children and Youth, Howard University, 2935 Upton Street, N.W., Washington, D. C. 20008; and Eugene McDonald, Ph.D., Research Professor, Speech Pathology, Pennsylvania State University, University Park, Pennsylvania 16802.

Purpose: To determine whether the application of *context* developmental features to selection of stimuli for training will make a difference in articulation therapy.

Subjects: 24 first grade defective articulators with no prior therapy contact and no obvious structural, motor, sensory, or specific learning difficulty.

Methods: Control and experimental therapy programs were administered to children who, prior to therapy, were similarly defective on the target sounds /s/, /k/, /r/ and matched on other relevant variables. Four matched pairs of subjects were assigned to each of the three target consonants under study; one subject from each pair was randomly assigned to the experimental therapy. Procedures were used to minimize sources of systematic bias specific to the therapist, the training program's content and administration, and methods of evaluating subjects' performance in the two groups. Several measures of articulatory performance were used to compare the two groups during and after therapy to determine whether deviant articulation is remediated fastest and sustained longest when therapy incorporates a systematic and developmentally based scheme to select stimuli for production practice. See *Research Relating to Children, Bulletin 36,* September 1975-February 1976, Study 36-CH-1, p. 41 for a description of Phase I of this project.

Duration: July 1975-June 1977.

Cooperating group(s): (1) National Day Care Association. (2) Washington, D. C. Public Schools. (3) Office of Human Development; U. S. Department of Health, Education, and Welfare.

39-DH-4 LONGITUDINAL STUDY OF CHILDREN ENROLLED IN A DISTINCTIVE FEATURES ARTICULATION PROGRAM

Investigator(s): Patricia A. Broen, Ph.D., Assistant Professor, Department of Communication Disorders, University of Minnesota, 205 Shevlin Hall, 164 Pillsbury, Minneapolis, Minnesota 55455.
Purpose: To develop effective procedures for teaching articulation skills; and to compare the predictive power of several distinctive feature models.
Subjects: Four preschool children with multiple articulation errors.
Methods: Children were enrolled in a teaching program designed to teach a distinctive feature contrast within the context of a phoneme pair exhibiting that contrast. Articulation data were collected at each step in the program and during the 2 years following the completion of the program. The predictive power of several feature models was compared.
Findings: Children can be taught features rather than just phonemes. The 13-feature Chomsky-Halle model is not as effective as a simpler model.
Duration: September 1974-September 1977.

39-DH-5 A STUDY OF RECEPTIVE LANGUAGE DEVELOPMENT OF CHILDREN IN A HEAD START PROGRAM

Investigator(s): Sue Stoner, M.S., Assistant Professor; and Peggy Brown, B.A., Graduate Student, Department of Psychology, Eastern Illinois University, Charleston, Illinois 61920.
Purpose: To investigate the effect of a Head Start program on the growth in receptive language of 4- and 5-year-old children.
Subjects: 44 children, ages 4 to 5; 19 boys and 8 girls enrolled in a summer Head Start program; and 11 girls and 6 boys who qualified for the program but did not attend.
Methods: The Peabody Picture Vocabulary Test (PPVT), Form A was administered to the subjects in the Head Start program during the first week. Subjects in the control group were given the PPVT, Form A in their homes the following week. All subjects were retested in May in their kindergarten classroom. A t-test for mean differences of pretest and posttest mental ages on the PPVT was computed.
Findings: There were no significant differences between pretest and posttest mental ages on the PPVT of children who had Head Start experiences and children who did not.
Duration: June 1975-completed.
Publications: Information is available from Professor Stoner.

39-DH-6 MOTHER-CHILD LANGUAGE INTERACTIONS

Investigator(s): Margaret C. Byrne, Ph.D., Professor, Department of Speech Pathology and Audiology, University of Kansas, 290 Haworth Hall, Lawrence, Kansas 66045.
Purpose: To provide complete linguistic transcripts of mother-child interactions; and to analyze the language of the mother and the responses of the child in different ways.
Subjects: One girl, age 14 months at the beginning of the study; and her mother.
Methods: Videotapes of mother-child interaction in the home were gathered over a period of 2½ years: weekly for the first year, biweekly the second year, and monthly the last few months. Transcriptions of mother and child utterances were prepared and analyzed.
Duration: January 1975-June 1978.
Publications: Transcriptions will be available from the investigator.

39-DH-7 TOWARD A PSYCHOLINGUISTIC THEORY OF PUNCTUATION

Investigator(s): R. Scott Baldwin, Ph.D., Assistant Professor, College of Education, University of Tulsa, 600 South College, Tulsa, Oklahoma 74104; and James M. Coady, Assistant Professor, Department of Linguistics, Ohio University, Gordy Hall, Athens, Ohio 45701.
Purpose: To determine the specific strategies which children employ in learning to cope with syntactic structures demarcated by points of punctuation.
Subjects: 175 fifth grade children from suburban Tulsa; and 20 fifth grade children from rural southeast Ohio.
Methods: Two experimental designs were employed: (1) a 2 x 2 factorial design, in which factor A was punctuation deletion and factor B was types of syntactic structures; and (2) a repeated measures design, with the same factors as in (1), but using isolated sentences rather than extended passages.
Findings: Neither pause phenomena nor traditional grammatical analyses can explain the function of pointing in English orthography. Specific psycholinguistic strategies have been identified.
Duration: October 1976-October 1977.

Personality

39-EA-1 ORIGIN OF RELATIONSHIP BETWEEN NEWBORN INFANTS AND ADULTS

Investigator(s): Klaus E. Grossman, Ph.D., Professor, Department of Psychology, Pädagogische Hochschule, Westfalen-Lippe, FB I, Psychologie, Lampingstrasse 3, D-4800 Bielefeld 1, Germany.
Purpose: To explore conditions that may hinder or enhance a rapid establishment of adult-infant interaction as a means of providing attachment and security.
Subjects: 50 newborn infants and their families.
Methods: Control group infants follow the regular hospital routine, while experimental group infants receive early, extended, and supported contact. Data are collected through naturalistic observation, descriptive protocols, videorecords, and the Ainsworth Scales.
Findings: Mothers' means of establishing a good interrelationship differ greatly, so that common indicators of the kind of relationship are difficult to establish.
Duration: 1976-1980.
Cooperating group(s): Universität Bielefeld, Lehrstuhl für Verhaltensphysiologie (Behavioral Biology).
Publications: Grossman, K. E. (Ed.) *Entwicklung der Lernfahigkeit in der sozialen Umwelt (Development of learning ability in the social environment).* München: Kindler, January 1977.

39-EA-2 FACILITATING AND INHIBITING PRECURRENT BEHAVIORS

Investigator(s): Joseph A. Parsons, Ph.D., Assistant Professor, Department of Psychology, University of New Mexico, Albuquerque, New Mexico 87106.
Purpose: To investigate precurrent behaviors; i.e., behaviors that are not directly reinforced, but provide the stimulus for responses, or behaviors, that are reinforced.

Subjects: 11 preschool girls and boys attending a university preschool.

Methods: In functional analysis of behavior, problem solving is described as a complete interaction in which variables affecting the probability of a solution response are manipulated by the problem solver. A problem solving episode is divided into two stages. The first, the Precurrent Stage, involves operants which function to increase the probability that a solution response will be emitted and reinforced. These responses are termed "precurrent" since by altering the problem situation they prompt other behaviors which enter into the solution-reinforcement contingency. In this study, comparisons were made between behaviors that increase, decrease, and do not alter reinforcement probabilities. The research design was based on single subject analysis and between group comparisons. Children were randomly assigned to one of three groups: (1) differential—in which differential precurrent behaviors were learned (e.g., subjects were instructed to rehearse their solution response); (2) nondifferential—in which no particular precurrent response was learned (e.g., subjects were given no instructions); and (3) common—in which children learned the same precurrent response under two stimulus conditions (e.g., subjects were instructed to rehearse a given response regardless of their solution response). Children were then switched to a delayed matching-to-sample paradigm where trained responses mediate the delay intervals.

Findings: Subjects trained in differential precurrent responses acquire matching in fewer trials than other subjects. When probe trials of varying delays are presented, these subjects show no delay decrement as do other subjects. Data for the common condition subjects show the opposite effects.

Duration: March 1977-May 1977.

Cooperating group(s): (1) University of New Mexico, Manzanita Center. (2) University of New Mexico, Research Allocations Committee.

Publications: (1) Parsons, J. A. and Ferraro, D. P. Complex interactions: A functional approach. In *New developments in behavioral research: Theory, method, and application. In honor of Sidney Bijou.* Hillsdale, New Jersey: Lawrence Earlbaum Associates, 1977, Pp. 237-245. (2) Parsons, J. A. Conditioning precurrent (problem solving) behavior of children. *Revista Mexicana de Análisis de la Conducta,* 1976, 2(2), 190-206.

39-EA-3 GAME PLAYING IN CHILDHOOD

Investigator(s): Douglas A. Kleiber, Ph.D., Assistant Professor, Department of Psychology, St. Cloud State University, Education Building, St. Cloud, Minnesota 56301.

Purpose: To examine the significance of organized sports and child-directed games for socialization, personality development, and adjustment in later childhood.

Subjects: 200 boys and girls, ages 9 to 12, predominantly white.

Methods: A correlational analysis was run on the scores of a sport group, a game group, and a control group on measures of self-esteem, tolerance for ambiguity, Machiavellianism, locus of control, cooperativeness and social adjustment. Scores were obtained through the use of teacher ratings; peer ratings; and the Madsen Cooperation Board, a measure of cooperation and competitiveness. A quasi-experimental analysis will be made of follow-up measurements.

Duration: January 1977-June 1978.

Cooperating group(s): St. Cloud, Minnesota, District #742 elementary schools.

39-EA-4 LATE OUTCOME OF INDIVIDUALS DIAGNOSED IN CHILDHOOD AS HAVING EITHER MATURATIONAL LAG OR CEREBRAL DYSFUNCTION

Investigator(s): Doris H. Milman, M.D., Professor, Department of Pediatrics, Downstate Medical Center, New York State University, Box 29, 450 Clarkson Avenue, Brooklyn, New York 11203.

Purpose: To learn the consequences of maturational lag or cerebral dysfunction with respect to educational attainment, personality structure, and social adjustment.

Subjects: 70 patients (75 percent male), initially ages 2 to 12, who were followed for 8 to 21 years.

Methods: Physical examinations for abnormalities in development and family, neurological, psychiatric, and psychological studies were performed initially and at follow-up contacts. Initial and follow-up studies were conducted by the same investigator.

Findings: Eighteen percent of the subjects have made a satisfactory adjustment; i.e., are able to live more or less independently, work full time or are full-time students. A good outcome was related more to an initially high IQ than to any other factor.

Duration: 1956-1978.

39-EA-5 AN ASSESSMENT OF EARLY MOTHER-INFANT INTERACTION AND THE SUBSEQUENT DEVELOPMENT OF THE INFANT IN THE FIRST TWO YEARS OF LIFE

Investigator(s): B. Kay Campbell, M.A., Psychology Intern; and Henry Massie, M.D., Psychiatrist, Well Baby Clinic, San Francisco General Hospital, 1001 Potrero Avenue, San Francisco, California 94110.

Purpose: To identify social patterns early in the mother-infant relationship that may be detrimental to healthy psychological development.

Subjects: 21 mother-infant pairs similar in age, marital status, education, socioeconomic status, parity, and prenatal care.

Methods: Clinical rating scales measuring interactional processes were administered to mother-infant pairs when the infants were less than 100 days old, and again when they were 15 months old. The scales quantified six behaviors believed to be fundamental to the development of attachment: holding, smiling, touching, vocalizing, visual engagement, and proximal maintenance. Reciprocity within the mother-infant dyad of five out of six behaviors during a standardized stress event determined the placement of 10 dyads in the Well Attached Group; failure of reciprocity within the mother-infant dyad of three out of six behaviors determined placement of 11 dyads in the Poorly Attached Group. The group assignments were designated before the infants were 100 days old. While the infants were under stress of physical examinations at 15 months of age, their social interactions with their mothers were reevaluated by three judges. In order to understand possible determinants of mother-infant behavior, the mothers were administered the Rorschach, the Thematic Apperception Test, the Minnesota Multiphasic Personality Inventory, and the Social History Questionnaire; the infants were administered the Bayley Scales of Infant Development. Medical charts of the infants were also abstracted with regard to health maintenance and social behavior records.

Findings: It was found that early social patterns had persisted: mother-infant pairs in the Poorly Attached Group tended to withdraw from one another during stress, and mother-infant pairs in the Well Attached Group tended to seek one another during stress. Major differences were found between the women in the two groups with regard to their psychological functioning: the Well Attached mothers appeared to have a greater capacity to delay gratification than did the Poorly Attached mothers. They were better able to cope with day-to-day problems, to manage social relationships, and to plan ahead. The Poorly Attached mothers were more concrete and more impulsive. The 21 infants in the sample were similar with regard to mental development as assessed by the Bayley Scales of Infant Development. Infants differed significantly with regard to psychomotor development and overall test behavior. The psychomotor development of the Well Attached infants was superior to that of the Poorly Attached infants. They were less fearful, less tense, and less depressed. A review of the infants' medical charts indicated a higher than average number of minor illnesses among all the infants. They differed with regard to their social behavior as percieved by medical staff members who were unaware that a study was in progress. The Poorly Attached infants were described as irritable, fussy, and prone to temper tantrums. The Poorly Attached mothers were described as distant, sullen, wooden, disinterested, or unable to comfort their babies. These kinds of comments were made significantly less often about infants and mothers in the Well Attached Group. There is considerable evidence that early mother-infant interactional patterns have implications for the child's personality development. If so, timely identification of social difficulties could lead to earlier and more effective psychological interventions. This study suggests that early difficulties in socialization processes, which may contribute to subsequent developmental problems, can be identified early in the mother-infant relationship.

Duration: September 1975-May 1977.

39-EB-1 THE RELATIONSHIP BETWEEN CLASSROOM ENVIRONMENT AND AFFECTIVE PUPIL CHARACTERISTICS

Investigator(s): Ian D. Smith, Ph.D., Lecturer, Department of Education, University of Sydney, Sydney, New South Wales, Australia 2006.

Purpose: To relate the degree of classroom structure to the affective pupil characteristics of self-esteem, locus of control, and level of anxiety; and to examine sex differences in these characteristics.

Subjects: 167 boys and 155 girls, ages 8 to 12, attending one of nine classes in four Sydney elementary schools. Two of the schools are located in upper middle class areas; two, in lower middle class areas.

Methods: Phase I: A correlational design was used. Data included observational measures of classroom structure, and paper and pencil measures of affective variables. Measures included Sears Self-Concept Inventory, Coopersmith Self-Esteem Inventory, Crandall Intellectual Achievement Responsibility Questionnaire, and the Spielberger State Trait Anxiety Inventory for Children. Data were analyzed using product moment correlations, analysis of variance, and factor analysis. Phase II: A posttest only control group design was used. Subjects identified as low self-esteem were assigned randomly to experimental and control groups. Teachers administered contingent positive reinforcement to experimental group subjects. The same instruments and analyses were used as in Phase I.

Findings: Phase I: A positive relationship between degree of classroom structure and self-esteem was found. No relationship was found for the other two variables. There was an interaction between affective variables and grade on degree of structure. Boys had more positive self-esteem than girls.

Duration: January 1975-June 1977.

Cooperating group(s): Education Research and Development Committee, Australian Department of Education.

Publications: A paper presented at the Annual Conference of the Australian Association for Research in Education, Brisbane, November 1976: Smith, I. D. The relationship between classroom environment and affective pupil characteristics.

39-EB-2 STRUCTURE AND STABILITY OF SELF-CONCEPT IN ELEMENTARY SCHOOL CHILDREN

Investigator(s): Robert J. Drummond, Ed.D., Professor, Department of Education, 312 Shibles Hall; and Walter G. McIntire, Ph.D., Associate Professor, School of Human Development, University of Maine, Orono, Maine 04473.
Purpose: To test Shavelson's (1976) model of self-concept; and to look at stability and antecedents of stability of self-concept over a 3- to 5-year period.
Subjects: 1,000 elementary school students in grades kindergarten through 8.
Methods: This is a longitudinal study. Measures used include Piers-Harris Self-Concept Scale, Coopersmith Self-Esteem Inventory, and Self-Concept and Motivation Inventory. Achievement, ability, and demographic information on the child's family is also collected. Correlational techniques are being used to analyze data including multiple stepwise regression and covariance techniques.
Findings: Shavelson's model is upheld in part. There seems to be different dimensions of self-concept: academic and nonacademic. Self-concept appears to be very fluid and not stable, although it is more stable under certain types of environments.
Duration: September 1972-June 1978.
Cooperating group(s): 10 school districts in Maine.

39-EB-3 LEVEL OF COGNITIVE DEVELOPMENT AS A MEDIATING VARIABLE IN SELF-REPORTED SELF-CONCEPT SCORES

Investigator(s): S. Gray Garwood, Ph.D., Assistant Professor, Department of Psychology, Tulane University, New Orleans, Louisiana 70118.
Purpose: To examine the influence of cognitive development on self-perception.
Subjects: 100 boys and girls, age 12, both black and white.
Methods: Subjects' scores on two self-concept measures were examined in relation to their performance on Piaget's Pendulum and Balance Problem and on a combinatorial thinking problem. Groups, formed on the basis of the use of extreme and nonextreme response styles on the two self-concept measures, were hypothesized to be at the concrete and formal levels, respectively.
Duration: December 1976-May 1977.

39-EB-4 SOCIAL AND EMOTIONAL ADJUSTMENT OF CHILDREN IN FIRST GRADE WITH AND WITHOUT MONTESSORI PRESCHOOL EXPERIENCE

Investigator(s): Carol Seefeldt, Ph.D., Associate Professor, Department of Early Childhood/Elementary Education, College of Education, University of Maryland, College Park, Maryland 20742.
Purpose: To assess the social and emotional adjustment of children with and without prior Montessori experience upon entrance into grade 1.
Subjects: 88 children entering first grade: 44 who had and 44 who had not had Montessori preschool experience from ages 2 to 5.
Methods: McDaniels Inferred Self-Concept Scale and Schaeffer's Classroom Behavior Survey Instrument were administered to children during the second week of first grade. Independent observers and teachers rated the children. A repeated measures design was used to analyze the data.

Findings: No significant differences appear to exist in the self-concept of children with and without the Montessori experience upon entrance into first grade. Social and emotional adjustment appear to be individual traits, not dependent on Montessori experience.
Duration: September 1977-September 1978.
Cooperating group(s): Arlington County Public Schools.

39-EB-5 REALISTIC PARENTING SKILLS TO PROMOTE CHILDREN'S POSITIVE SELF-REGARD

Investigator(s): Lucie W. Barber, Ed.D., Director, Applied Research; John H. Peatling, Ph.D., Director, Basic Research; and Helen Cernik, Executive Secretary, Research Section, Character Research Project, Union College, 207 State Street, Schenectady, New York 12305; and Rev. John T. Hiltz, Ph.D., Director, Religious Education; and Sister Louise Marie Skoch, Diocesan Early Childhood Specialist, Diocese of Toledo, 436 West Delaware, Toledo, Ohio 43610.
Purpose: To field test a seven-meeting program for parents of preschool age children in order to test the effect of such a program on the children's self-concepts.
Subjects: 84 mothers and fathers of children, ages 2 to 5, who are members of a parish in Ohio; and 84 parents as control subjects.
Methods: The design includes a pretest, a posttest 3 months after the parents' program, and another posttest 8 months after the program. The primary instruments used are the Barber Scales of Self-Regard: Preschool. The program is intended to teach parents how to observe their child, assess developmental levels, set goals, reinforce desired behaviors, evaluate, and adapt.
Duration: February 1977-June 1978.
Cooperating group(s): National Conference of Diocesan Directors of CCD.
Publications: Hiltz, John T. *Character potential: A record of research ERIC.*

39-EB-6 THE PHOTOGRAPHIC SELF-CONCEPT OF CHILDREN

Investigator(s): R. C. Ziller, Ph.D., Professor, Department of Psychology, University of Florida,Gainesville, Florida 32611.
Purpose: To try to understand the child and his/her environment from his/her view using nonverbal communication via a camera.
Subjects: 20 boys and 20 girls in first grade; 20 boys and 20 girls in fifth grade; and 20 adolescent delinquents and 20 control adolescents, ages 13 to 17.
Methods: Subjects were given camera and film and told to take 12 pictures to make a book about themselves. Photos were studied to determine if any patterns emerged in who and what appeared. Data were compared by sex and age. Data were also compared to a similar study done with college students.
Findings: Differences occurred in the appearance of friends, mothers, fathers, home, books, school, and activities. Fathers didn't appear in the photographs of young children as often as mothers. In pictures taken by delinquents, there were few pictures of activities.
Duration: January 1976-September 1977.
Cooperating group(s): Gainesville Public Schools.

39-EB-7 THE HUMAN DEVELOPMENT PROGRAM AND PUPIL SELF-CONCEPT

Investigator(s): Robert J. Hess, Ph.D., Assistant Professor; Gary Peer, Ed.D., Assistant Dean; and Mary Porter, M.Ed., Counselor, Division of Professional Studies, University of Tulsa, 600 South College, Tulsa, Oklahoma 74104.
Purpose: To test the effects on select facets of pupil self-concept of the Human Development Program, designed to help children express their feelings and feel comfortable in peer group situations.
Subjects: 24 male and 14 female 6th grade children.
Methods: In the Human Development Program, children participate in group discussions on a hierarchy of topics. Sessions are led by a counselor, who establishes and maintains group rules (e.g., no interruptions when someone else is speaking). A 3 X 3 X 2 experimental design was used incorporating three experimental and three control groups with sex as another independent variable. The Piers-Harris Self-Concept Inventory was used in a pretest-posttest design.
Findings: Effects favoring the experimental group were found on the subtests popularity, happiness and satisfaction, and on the total score of the Piers-Harris.
Duration: October 1976-March 1977.
Cooperating group(s): University of Tulsa, Office of Research.

39-EC-1 THE DEVELOPMENT OF ROLE-TAKING, MORAL BEHAVIOR, AND THE INGROUP-OUTGROUP DISTINCTION

Investigator(s): Ellen B. Dickstein, Ph.D., Assistant Professor; and Curtis McIntyre, Ph.D., Associate Professor, Department of Psychology, Southern Methodist University, Dallas, Texas 75275.
Purpose: To investigate (1) the early development of role-taking skill, (2) the development of altruism and resistance to temptation, (3) the development of the ingroup-outgroup distinction (friendship choice), and (4) the influence of role-taking skill and the ingroup-outgroup distinction on moral behavior.
Subjects: 63 private school children, ages 2-1/2 to 6.
Methods: This was principally a cross-sectional developmental study. The tasks employed were designed for this research project and include three measures of role-taking skill (cognitive, affective, and perceptual), three measures of altruism, and two measures of resistance to temptation. The ingroup-outgroup distinction is manipulated in each of the moral behavior tasks. All tasks are very simple and require minimal verbal facility. Analysis of variance will determine differences across age groups. Correlations will assess the strength of the relationships between variables.
Findings: Pilot work has indicated that the major shift in role-taking skill occurs between ages 3-1/2 to 5.
Duration: Fall 1976-Summer 1977.

39-EC-2 DEVELOPMENTAL CHANGES IN SOCIAL-MORAL PERCEPTION: SOME FACTORS AFFECTING CHILDREN'S EVALUATIONS AND PREDICTIONS OF THE BEHAVIOR OF A TRANSGRESSOR

Investigator(s): James C. Mancuso, Ph.D.; James F. Morrison, Ph.D.; and Carl C. Aldrich, Ph.D., Department of Psychology, State University of New York, Albany, New York 12203.

Purpose: To explore the effects of information and instigating circumstances on children's judgments of a transgressor.
Subjects: 36 boys: 12 each in grades 1, 6, and 8.
Methods: Children watched films in which they observed either an accidental or intentional transgression under different conditions of instigation. They then made judgments about the transgressor using a general rating scale and a behavior prediction device. Analysis of variance was used to assess differences across age.
Findings: Only at grade 8 does the intentional transgressor have a less negative rating on one condition of instigation. All other children make negative judgments of intentional transgression under any instigation. Sixth and eighth graders make very positive judgments of an accidental transgressor when he has offered to help.
Duration: September 1972-August 1977.
Publications: *Journal of Genetic Psychology* (in press).

39-EC-3 THE ROLE OF AFFECT IN CHILDREN'S ATTRIBUTION OF INTENTIONALITY

Investigator(s): John M. Rybash, M.A., Assistant Professor, Department of Psychology, Mohawk Valley Community College, 1101 Sherman Drive, Utica, New York 13501; and Paul A. Roodin, Ph.D., Associate Professor, Department of Psychology, State University of New York, Oswego, New York 13126.
Purpose: To investigate how children employ the emotional reactions of an actor to determine the intentional/accidental nature of the actor's behavior.
Subjects: 72 girls and boys: 12 boys and 12 girls in kindergarten and first and second grades, from middle socioeconomic status homes.
Methods: Subjects were told motivationally ambiguous bad-outcome stories in which the main character (actors) displayed the emotion of happiness, sadness, or neutrality. Subjects were asked to evaluate the actor's behavior as intentional or accidental and to determine the amount of punishment each actor should receive.
Duration: March 1977-June 1977.

39-EF-1 MODELING EFFECTS ON REDUCTION OF CHILDREN'S FEAR OF DENTISTRY AND THE RELATION BETWEEN PATIENT UNCOOPERATIVENESS AND MATERNAL ANXIETY

Investigator(s): Rafael Klorman, Ph.D., Associate Professor, Department of Psychology, University of Rochester, Rochester, New York 14627.
Purpose: To assess the effects of modeling on children's uncooperativeness in dental treatment (in particular, to compare a coping and mastery model against a model engaged in an activity irrelevant to dentistry); and to determine whether a child's fear and uncooperativeness during dental contacts are correlated to maternal fear of dentistry.
Subjects: Study I: 60 girls and boys, mean age 10 years—20 in each of three groups. Study II: 146 children, who had prior dental treatment.
Methods: In Study I, children were observed during treatment in which all received one or more filling. Observations were made from behind a one-way mirror. The Melamed *et al.* Behavior Profile Rating Scale, an objective count of over 20 behaviors, was completed for each child. Heartrate and palmar sweat indices were assessed during baseline following the child's viewing of the model and following injection. In Study II, disruptiveness was measured using the Frankl *et al.* and Melamed *et al.* Scales. The Bendig Form of the

71

Taylor Manifest Anxiety Scale was used to measure maternal trait anxiety; the Bailey *et al.* Maternal Questionnaire measured situational anxiety, and the Corah Scales measured dental anxiety.

Findings: Study I results show a trend in support of the hypothesized superiority of the coping model. Weaker modeling effects were obtained than previously reported with new pedodontic patients, probably because of the use of experienced and moderately fearful subjects. Modeling has value for behavioral management in dentistry, but refined techniques are needed for the experienced patient. In Study II, the results failed to show a consistent association between the child's disruptiveness or his self-reported fear of dentistry, on the one hand; with maternal trait anxiety, situational anxiety, or dental anxiety, on the other hand. Disruptiveness was predictable from (1) pretreatment ratings of the child's fear of dentistry by his dentist, mother, and the child himself; (2) the child's prior contact with dental or medical treatment; and (3) the child's state anxiety. These results replicated prior reports of lack of clear association between maternal trait anxiety and disruptiveness by children with prior dental treatment, thereby suggesting that fear of dentistry may depend more on the child's experience.

Duration: Fall 1975-continuing.

Cooperating group(s): Eastman Dental Center.

39-EF-2 FEARS DURING PREGNANCY

Investigator(s): H. Heymans, M.D.; and S. T. Winter, M.D., Department of Pediatrics, Rothschild Municipal-Government Hospital and Aba Khoushy School of Medicine, Technion-Israel Institute of Technology, Haifa, Israel.

Purpose: To measure the incidence and nature of fears and anxieties of pregnant women in Israel.

Subjects: 200 women: 170 Jews, 30 Arabs.

Methods: Subjects were selected randomly excluding women who had had a cesarean section; those with malformed, sick, or low birthweight infants whose survival was doubtful; or those who could not communicate with the interviewer because of language. A single interviewer, a member of the pediatric staff, conducted interviews at the mother's bedside. An informal conversation, lasting approximately 15 minutes, included questions from a planned questionnaire. Demographic data were obtained from hospital records. The interview included questions about (1) fears during pregnancy concerning the infant and mother, (2) when during the pregnancy fear/anxiety began, (3) to whom any fear/anxiety was communicated, (4) who provided reassurance, (5) whether the mother had known someone who had experienced an abnormal pregnancy, and (6) any superstitions about pregnancy known by or told to the mother during pregnancy.

Findings: Fears/anxieties during pregnancy were reported by 81 percent of the women. More fears were reported by Jews than Arabs; specifically, fears about having a mentally defective child. More Arabs than Jews had been told superstitions and more Arabs believed them. Primiparous mothers reported more fears of having a malformed infant than multiparous mothers. Generally, mothers with more than 13 years of education reported more pregnancy fears, more fears of having an abnormal infant, and less belief in superstitions.

Duration: 1974-completed.

Publications: Heymans, H. and Winter, S. T. Fears during pregnancy. *Israel Journal of Medical Sciences,* November 1975, 11(11), 1102-1105.

72

39-EF-3 CHILDREN'S ATTITUDINAL AND BEHAVIORAL RESPONSES TO SKYJACKING AND HOSTAGE EXPERIENCE

Investigator(s): Sylvia R. Jacobson, M.S., Associate Professor, School of Social Work, Florida State University, Tallahassee, Florida 32306.

Purpose: To assess the effects of skyjacking and hostage experiences on the attitudes and behavior of children.

Subjects: 50 to 60 children (infants through adolescents) on board three planes that were skyjacked.

Methods: The study design included personal observations of a participant observer, interviews with children, review of children's diaries loaned to the investigator, and newspaper reports of interviews with children. There was no control group or statistical treatment of data.

Duration: March 1972-completed.

Publications: Individual and control responses to confinement in a skyjacked plane. *American Journal of Orthopsychiatry*, April 1973, 43, 459-469.

Social

39-FA-1 THE EARLIEST SOCIALIZATION IN HUMAN INFANTS

Investigator(s): Hanůs Papoušek, M.D., Sc.D., Professor, Chief of Research; Mechthild Papoušek, M.D., Research Stipendist; Angela Schoetzau, M.D., Psychological Research Co-Worker; and Anne Fernald, B.A., Stipendist, Max-Planck-Institute for Psychiatry/EPB, Kraepelin Str. 10, 8000 Munich 40, Federal Republic of Germany D-8000.

Purpose: To study human behavioral development and regulation with particular attention to social interaction in order to detect potential origins of disorders in the process of socialization.

Subjects: Human newborns and infants and their caretakers.

Methods: Methods include field observations and microanalysis of selected behavioral patterns recorded with film and video techniques under laboratory conditions using originally designed equipment.

Findings: Descriptions have been made of maternal responses facilitating visual contact and of changes in maternal voice during interaction with newborns.

Duration: September 1975-July 1978.

Cooperating group(s): Developmental Psychobiology Team II (Preschool Age), Science Center, Research Nursery, Bad Godesberg, Germany.

Publications: Papoušek, H. and Papoušek, M. Mothering and the cognitive head start: Psychobiological considerations. In H. R. Schaffer (Ed.), *Studies in mother-infant interaction*. London: Academic Press (in press).

39-FA-2 THE RELATIONSHIP BETWEEN LEADERSHIP STYLE AND BIRTH ORDER IN NURSERY SCHOOL CHILDREN

Investigator(s): Robert C. Hardy, Ph.D., Associate Professor; E. Joan Hunt, Ph.D., Assistant Professor; and Eleonore Lehr, M.A., Advanced Doctoral Student, Institute for Child Study, College of Education, University of Maryland, College Park, Maryland 20742.

Purpose: To revise and expand Fiedler's Least Preferred Co-Worker Scale (LPC) into an appropriate instrument (Least Preferred Playmate Scale: LPP) to use with nursery school children; and to determine any relationship between leadership style and birth order for this age group.
Subjects: 22 girls and 14 boys, ages 4.0 to 4.11, from varied socioeconomic backgrounds, representing several ethnic groups.
Methods: A chi-square birth order X LPP contingency table was the design used. The LPC Scale was revised to a more simplified version resulting in a 15-item bipolar adjective checklist with three choices per item. Words used on the LPC were changed to words or phrases more familiar to young children. Subjects were identified by use of a median split, as task-oriented (low LPP, rates least preferred playmate unfavorably) and relation-oriented (high LPP, rates least preferred playmate favorably). Each child was administered the scale individually in a private room next to the classroom. The child was aksed questions to identify birth order. (This was also checked against school records.) Any questions regarding the instructions or meanings of words were answered.
Findings: The means for the low and high LPP groups were 22.78 and 36.78, respectively. Thirty-three percent of the firstborns and 62 percent of the later borns were relation-oriented, while 67 percent of the firstborns and 38 percent of the later borns were task-oriented. The birth order X LPP contingency tabie yielded a chi-square value of 2.97 (using Yates's correction for small sample size) which was not significant. The population was split by sex and separate chi-squares were run. For males, the chi-square value of .62 was not significant. For females, 20 percent of the firstborn were relation-oriented, and 80 percent were task-oriented. The chi-square value of 6.78 was significant. It was concluded that firstborn females respond more to authority, and later borns are more socially-oriented; this was not supported for males.
Duration: October 1975-continuing.

39-FA-3 STRUCTURAL ANALYSIS OF SOCIAL BEHAVIOR

Investigator(s): Lorna S. Benjamin, Ph.D., Associate Professor, Department of Psychiatry, University Hospitals, University of Wisconsin, 1300 University Avenue, Madison, Wisconsin 53706.
Purpose: To refine Benjamin's model of dyadic social interaction for more precise study of parent-child, parent-parent, and general person-person interactions.
Subjects: 107 mothers with 171 children, ages 0 to 21 (92 males and 79 females). The average family had 2.6 children. Seventy-nine percent came from a large pediatric out-patient clinic affiliated with a Catholic hospital serving a broad range of socioeconomic levels, and 21 percent came from a Family Health Service affiliated with the University of Wisconsin and consisted of undergraduate and graduate students.
Methods: Questionnaires were distributed, completed by the mothers at home, and returned by mail. Two series of questionnaires were used. Series A measured a mother's perceptions of her child's behaviors toward others (parentlike) and toward self (childlike). Series B measured the mother's perceptions of her own behaviors in relation to her child. Items in both questionnaires were analyzed using a sex X age X unequal N analysis of variance. Another analysis of variance was performed on weighted affiliation and weighted autonomy scores for parentlike and childlike behaviors.
Duration: 1968-continuing.
Publications: (1) Benjamin, L. S. Structural analysis of developmental trends. *Psychological Review,* 1974, 81(5), 392-425. (2) A list of publications is available from the investigator.

39-FA-4 PERSONAL SOCIAL BEHAVIORS OF LOW INCOME CHILDREN IN A LONG-TERM FAMILY DEVELOPMENT PROJECT

Investigator(s): J. Ronald Lally, Ed.D., Project Director; and Alice S. Honig, Ph.D., Program Director, Family Development Research Program, College for Human Development, Syracuse University, 100 Walnut Place, Syracuse, New York 13210.
Purpose: To use the Emmerich Personal-Social Observation Scales to assess whether an enriched family style, open education, developmental day care program with a parent home visitation component for low income young children (from infancy to school age) will result in positive and optimal social functioning with peers and adults.
Subjects: Children participating in the Syracuse University Children's Center program; and matched controls.
Methods: Six half-hour observations for each child were scored on unipolar and bipolar scales. Ratings were done at ages 3, 4, and 5. Data have also been collected for a control group of 36-month-old low income children.
Findings: Data are available for one group of 48-month-old experimental children and for two other groups of 36-month-old children (one experiment and one control). The 36-month-old Center children, when compared to their controls are more involved, tolerant of frustration, expressive, relaxed, dominant, active, energetic, stable, social, assertive and bold, independent, constructive, purposeful, affectionate to others, socially secure, flexible, and happy. They are less *otherwise motivated* as opposed to *academically motivated* than are controls. When the 48-month-old Center children are compared with the 36-month-old Center children, they seem to exhibit even more of the positive traits displayed by their younger schoolmates.
Duration: July 1974-June 1977.
Cooperating group(s): Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare.
Publications: Lally, J. R. Progress Report of the Children's Center, 1973 and 1974.

39-FA-5 FATHER-INFANT INTERACTION

Investigator(s): Michael W. Yogman, M.D.; Suzanne Dixon, M.D.; Edward Tronick, Ph.D.; Heidelise Als, Ph.D.; and T. Berry Brazelton, M.D., Child Development Unit, Children's Hospital Medical Center, 300 Longwood Avenue, Boston, Massachusetts 02115.
Purpose: To understand the nature of father-infant interaction and the social skills that enable infants to interact with several adults.
Subjects: Five two-parent families with infants, ages 0 to 6 months; and adult strangers.
Methods: In a longitudinal study, slow motion videotapes of face-to-face interactions in a laboratory were analyzed. An analysis of variance of cross-sectional groups was done at different ages.
Findings: Infants interact differentially with mothers, fathers, and strangers by 2 months of age. Interaction with both parents is mutually regulated but content of play appears different.
Duration: 1974-1977.

39-FA-6 THE CLASS CLOWN PHENOMENON: IMPLICATIONS FOR THE BEHAVIOR OF MIDDLE SCHOOL STUDENTS

Investigator(s): Sandra Bowman Damico, Ed.D., Assistant Professor, Coordinator, Faculty Research, P. K. Yonge Laboratory School, College of Education, University of Florida, Gainesville, Florida 32611; and William W. Purkey, Ed.D., Professor, College of Education, University of North Carolina, Greensboro, North Carolina 27412.
Purpose: To explore some of the social and psychological dimensions of "clowning" among 8th grade pupils.
Subjects: Phase I: 134 students identified by their classmates as "clowns"; and a random sample of 380 nonclowns selected from 3,800 eighth grade children in 47 classrooms of 11 Florida middle schools. Phase 11: 40 children nominated by their classmates as clowns. Each of these clowns was matched with a nonclown classmate on the basis of race, sex, social status, and academic achievement.
Methods: Students nominated classmates to five sociometric positions, one of which asked for identification of "class clowns." Those pupils receiving multiple peer nomination were designated "class clowns." In 1975-76, teachers completed measures of inferred academic self-concept and classroom behavior on the clowns and a random sample of their classmates. At the same time, the clowns and random sample provided demographic data and completed measures of self-esteem and school attitude. During 1976-77, clowns and matched students took photographs of their perceptions of school, while teachers completed a playfulness scale and an academic achievement form on them.
Findings: There are two distinct types of class clowns. One type is seen as a genuine comic or wit. The second type of clown creates humor at the expense of others and is viewed negatively by peers. Females are seldom identified as clowns and black students receive nominations in proportion to their representation in the student population. Clowns are seen by teachers as leaders, but also as unruly. They are also seen as not completing assigned classroom tasks. Clowns report a lower attitude toward teachers and principals than do nonclowns but report as positive a view of the total school as nonclowns. Clowns indicate a greater satisfaction with self than do nonclowns, don't find it difficult to talk in front of a class, report that other students follow their ideas, and indicate that they don't get upset easily at home or feel misunderstood by their parents.
Duration: Fall 1975-Spring 1978.
Cooperating group(s): Florida Educational Research and Development Council.
Publications: A paper is available from the investigators.

39-FA-7 FOSTERING POSITIVE ATTITUDES TOWARD THE ELDERLY AND THE AGING PROCESS

Investigator(s): Carol Seefeldt, Ph.D., Associate Professor; and Richard K. Jantz, Ph.D., Associate Professor, Department of Early Childhood/Elementary Education, College of Education, University of Maryland, College Park, Maryland 20742.
Purpose: To change children's attitudes toward the elderly and aging from negative and stereotypic to positive and realistic through planned curriculum intervention.
Subjects: 300 children in grades kindergarten through 6 in school systems in the greater Washington metropolitan area. The children represent a wide variety of race and ethnic backgrounds and rural, urban, and suburban living patterns.
Methods: The treatment curriculum was conducted by classroom teachers. The teachers received training in attitudes toward the elderly, problems of the aged, and attitude formation and change. The curriculum was based on three major goals: (1) increasing

children's knowledge of the elderly, (2) capitalizing on the positive affective feelings children held toward older people, and (3) focusing on children's own aging. Teachers integrated lessons about the elderly into the regular classroom routing and involved elderly people from the community as classroom aides. Pre- and postassessment of children's attitudes toward the elderly using the Children's Attitudes Toward the Eldery Survey provided data on the efficacy of the curriculum. A control group was used. Multiple regression was used to identify differences in attitudes of children toward the elderly with and without the treatment of intervening curriculum designed to foster positive attitudes toward the elderly.

Findings: Some attitudes toward aging and the elderly are not modified by the curriculum intervention. Others were enhanced by the curriculum; e.g., knowledge of the elderly and affective feelings toward older people.

Duration: August 1977-August 1978.

Cooperating group(s): American Association of Retired Persons.

39-FA-8 DEVELOPMENT OF CHILDREN'S FRIENDSHIP CLIQUES

Investigator(s): Maureen T. Hallinan, Ph.D., Associate Professor, Department of Sociology, Stanford University, Stanford, California 94305.

Purpose: To trace the formation and evolution of clique structures in elementary school classes over the academic year.

Subjects: 11 classes of 4th, 5th, and 6th grade boys and girls studied seven times during an academic year; and 51 classes of 6th, 7th, and 8th grade boys and girls studied at one point in time.

Methods: Sociometric data were collected using a free choice technique. Clique structures were identified using a modified definition of "clique" based on Alba's program COMPLT and SOCK. Features of the data set are its size and detailed longitudinal information on friendships.

Findings: Strong sex cleavages were found at all ages. Results indicate fairly strong boundaries among cliques and considerable stability of clique membership over the school year. Less cliquing was found than is generally assumed at the elementary level.

Duration: September 1976-September 1977.

Cooperating group(s): National Institute of Education; U. S. Department of Health, Education, and Welfare.

39-FA-9 THE DEVELOPMENT OF SOCIAL INTERACTION SKILLS

Investigator(s): Barbara M. Newman, Ph.D., Associate Professor, Department of Psychology, Russell Sage College, Troy, New York 12180.

Purpose: To investigate the social sensitivity of middle school age and early adolescent youth.

Subjects: 365 students, ages 11 to 15, in grades 6 through 10, half male, half female.

Methods: Data were collected by means of a self-report assessment test which asked students to listen to six conversations between people of different ages and to rate these conversations on four dimensions.

Findings: Findings indicate a developmental drop between 6th and 8th grades with a subsequent rise from 8th through 11th grades. Females regularly score higher than males except in the 6th grade.

Duration: Spring 1975-Fall 1977.

Cooperating group(s): Burnt Hills School System, Balston Spa, New York.

39-FB-1 DEVELOPMENT OF EQUALITY ATTITUDES

Investigator(s): Åke Bjerstedt, Ph.D., Professor of Education; and L. Wiechel, Ph.Lic.; B. Yebio, Ph.Lic.; and L.-P. Lindholm, Ph.Lic., Researchers, Malmö School of Education, Fack. S-20045, Malmö, Sweden.
Purpose: To construct and test methods for studying children's attitudes toward equality and solidarity, including sex roles, and attitudes toward foreign groups; to map age related development; and to study educational possibilities of changing attitudes.
Subjects: The project includes several substudies with various groups of subjects. A major study included 44 classrooms in grades 1 to 5 (20 classrooms for developmental studies; 24 for educational experiments).
Methods: Batteries of attitude tests with several new constructions were used in the study of age related development. The educational experiments are following the general design of pretest, educational program, and posttest (with control classes). There will be two major types of educational programs, one focusing on sex roles, and the other on attitudes toward foreign groups. Possible carry-over effects to other areas of equality attitudes will be studied.
Duration: 1974-continuing.
Cooperating group(s): Swedish Board of Education, Stockholm.
Publications: Reports will be published by the Malmö School of Education, Sweden.

39-FD-1 PRESCHOOL CHILDREN'S PERCEPTIONS OF ATYPICAL SEX ROLES

Investigator(s): Glenn Cordua, M.S.; and Kenneth O. McGraw, Ph.D., Assistant Professor, Department of Psychology, University of Mississippi, University, Mississippi 38677.
Purpose: To investigate preschool children's perceptions of adults in occupations atypical for their sex.
Subjects: 60 normal, middle class children, ages 2 to 5.
Methods: Children viewed a film of a boy's visit to the doctor. The sex of the doctor and nurse varied. Following the film, children were asked to identify the doctor and the nurse from pictures.
Findings: At ages 3, 4, and 5, misidentification of the nurse reaches 100 percent when the nurse was portrayed by a male. Misidentification of the doctor when portrayed by a female was almost as drastic.
Duration: Fall 1976-Fall 1977.

39-FE-1 STYLES OF PARENT-CHILD INTERACTION AS A MEDIATION FACTOR IN CHILDREN'S LEARNING FROM TELEVISION ANTISOCIAL PORTRAYALS

Investigator(s): Felipe Korzenny, Senior Research Assistant and Doctoral Candidate, Department of Communication, Michigan State University, East Lansing, Michigan 48824.
Purpose: To find out how parent-child interaction modes affect the ways in which children develop a willingness to imitate antisocial TV representations.
Subjects: 300 boys and girls, ages 4 to 8; and their mothers, who live in two comparable cities in Wisconsin and Michigan.
Methods: It was hypothesized that children who have internalized a certain set of moral standards will be less likely to imitate antisocial TV portrayals than externally-oriented children. A factor analytic solution was obtained in order to test the existence of two main dimensions of parent-child interaction types; internally- and externally-oriented. Pearson

correlation coefficients were then computed at different intersections of the internal and external orientations, between the child's exposure to antisocial TV portrayals and his/her willingness to use antisocial means for problem resolution.

Findings: In a pretest with 200 children, it was found that the two main dimensions (internal and external) clearly emerged. Parental inductive techniques load in the same factor as the child's internal responses to social situations; sensitizing parental techniques load on the same factor as the child's external responses to social situations.

Duration: Spring 1976-Summer 1977.

39-FE-2

CHILDREN'S USE OF TELEVISION AS A SOURCE OF SOCIAL ROLE MODELS

Investigator(s): Douglas K. Uselding, Ph.D., Assistant Professor, Department of Psychology, University of South Dakota, Vermillion, South Dakota 57069.

Purpose: To assess the relationship between the portrayal of stereotypic male and female television characters and children's development of gender related stereotypes.

Subjects: 500 children, ages 5 to 11, from a middle socioeconomic group in a rural school system.

Methods: The Comprehensive Sex Role Scale for Children (CSSC) has been developed based on past scales (Brown's IT Scale and Hartley's and Hardesty's Role Distribution Scale) and on new laboratory research on sex typing in children's toys. An objective scale for assessing stereotyping in TV portrayals based on semantic differential assessment of *masculine* and *feminine* was also completed using 116 variables and 700+ adult raters. The viewing preferences of the children were assessed; and the stringency of stereotyping in children with that of their favorite TV character, second favorite character, and top three favorite programs was correlated. A manipulative study was conducted to determine the attention getting and holding power of TV characters that match or are discrepant from the child's level of stereotyping.

Findings: After assessing 350 children, there are clear viewing preferences that match predictions based on current Nielson and Arbitron sweeps.

Duration: October 1976-March 1978.

Cooperating group(s): National Science Foundation.

39-FE-3

IMAGINATIVE PLAY AND TELEVISION VIEWING IN PRESCHOOL CHILDREN: A LONGITUDINAL AND INTERVENTION STUDY

Investigator(s): Dorothy G. Singer, Ed.D., Visiting Research Scientist, Professor of Psychology; and Jerome L. Singer, Ph.D., Professor, Department of Psychology and Family Television Research and Consultation Center, Yale University, New Haven, Connecticut 06520.

Purpose: To examine the development of imaginativeness in 3- to 4-year-old children during natural play in nursery school settings; and to examine any relation this behavior may have to concurrent television viewing patterns of the children.

Subjects: Approximately 145 girls and boys, ages 3 to 4-1/2, from eight nursery schools in the New Haven, Connecticut area. The children were from lower middle to middle class socioeconomic backgrounds.

Methods: Subjects from each socioeconomic background were randomly assigned to one of four groups: a training group for parents on control of the TV set, a training group for parents on how to use imaginativeness to inoculate children against the noxious possibilities of television, a cognitive skills training group for parents, and a control group. Data included preobservation and predispositional testing during spontaneous play on IQ, imaginative play predisposition, and on 14 variables observed by blind raters during the children's free play.

Duration: October 1976-April 1978.

Cooperating group(s): National Science Foundation.

39-FE-4 TELEVISION VIEWING AMOUNT AND SCHOOL GRADES

Investigator(s): Sharon L. Gadberry, Ph.D., Associate Professor, Psychology Department, Adelphi University, Garden City, New York 11530.

Purpose: To examine the relationship between television viewing (amount and/or content) and school grades.

Subjects: 47 girls and 43 boys in first, third, and fifth grades, from middle class backgrounds.

Methods: A cross-lagged longitudinal design was employed. Television viewing amount and grades were measured twice, 18 months apart. Kenny's (1976) z comparison of the two cross-lagged correlations was used to determine if the correlation between time 1 viewing measures and time 2 grades was higher than the correlation between time 1 grades and time 2 viewing measures.

Findings: Television affected effort grades and academic grades among first grade children and low achievers only. Certain program categories enhanced grades, while others decreased grades.

Duration: September 1975-continuing.

Publications: A paper presented to the Society for Research in Child Development, New Orleans, Louisiana, 1977.

39-FE-5 TELEVISION VIOLENCE AND THE ADOLESCENT BOY

Investigator(s): William Belson, Ph.D., Director; and Carol Wain, M.Phil.; Graham Hankinson, B.A.; and Peter Southgate, M.A., Senior Research Officers, Survey Research Centre, London School of Economics and Political Science, 58 Battersea Park Road, London, England SW11 4BP.

Purpose: To investigate the effects on boys of long-term exposure to television violence.

Subjects: 1,565 boys, ages 13 to 16, living in London.

Methods: A 16-month technique development period was concerned mainly with hypothesis derivation, construction of measuring techniques, and development of research strategies for investigating causal hypotheses. This was followed by an extended period of specialized data extraction. The basic design was the hypothetico deductive method, which in this case principally involved comparison of heavy and light exposures to television violence. This was followed by a massive form of empirical matching in terms of composites of the correlates of dependent variables, using the stable correlate method. Hypotheses were investigated in both forward and reversed forms, and conclusions were made in terms of increased or decreased tenability of hypotheses. Over 400 hypotheses and subhypotheses were investigated using this pattern. Hypotheses related to both general and specific kinds of television violence. Parallel checks were done for other mass media.

Duration: 1972-1977.

Cooperating group(s): (1) Columbia Broadcasting System, Inc., U.S.A. (2) British Broadcasting Corporation. (3) Independent Broadcasting Authority, England.

Publications: Belson, William. *Juvenile theft: The causal factors.* London: Harper and Row, 1976.

80

SPECIAL GROUPS OF CHILDREN

Physically Handicapped

39-GA-1 PREVALENCE OF EPILEPSY IN OREGON CHILDREN

Investigator(s): S. Spence Meighan, M.D., Project Director, Neuroscience Institute, Epilepsy Center of Oregon, Good Samaritan Hospital, Portland, Oregon 97201; and Morris Weitman, Ph.D., Professor, Department of Psychology, Portland State University, Portland, Oregon 97207.

Purpose: To cross-validate the questionnaire method developed by Rose *et al.* for collecting data on epileptic children; and to ascertain the prevalence of epilepsy in children of Oregon.

Subjects: Approximately 12,000 boys and girls, 3rd graders residing in seven counties of Oregon, representing about half of the population.

Methods: Questionnaires were mailed to parents or guardians; repeated mailings yielded a final return rate of 75 to 80 percent. A random 25 percent of the respondents were called in for neurological and EEG examinations. An estimate of the prevalence of epilepsy will be compared with estimates obtained by other investigators using the same method.

Findings: The questionnaire method seems to be a promising tool for the estimation of the prevalence of epilepsy.

Duration: September 1974-June 1978.

Cooperating group(s): (1) National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare. (2) Epilepsy League of Oregon. (3) Oregon Medical Association.

Publications: Meighan, S. S.; Queener, L.; and Weitman, M. Prevalence of epilepsy in children of Multnomah County, Oregon. *Epilepsia,* 1976, 17, 245-256.

39-GB-1 CONNECTED SPEECH TESTS OF HEARING FOR PARTIALLY HEARING CHILDREN

Investigator(s): John Bench, Ph.D., Principal Scientific Officer, Audiology Research Unit, Royal Berkshire Hospital, Reading, Berkshire, United Kingdom RG8 8NT.

Purpose: To develop connected speech tests for partially hearing children.

Subjects: 400 boys and girls, ages 8 to 16, with hearing losses of 40dB +.

Methods: The spoken language of partially hearing children was sampled and used to devise tests of hearing for connected speech. These standardized tests were administered to subjects.

Duration: October 1976-September 1978.

Cooperating group(s): Schools for the deaf and partially hearing in Southeast England.

Publications: Bench, J. and Bamford, J. (Eds.) *The spoken language and speech reception of partially hearing children. Vol. I.* Academic Press (in press).

39-GC-1 SIGNAL PROCESSING IN CHILDREN WITH AUDITORY PERCEPTUAL DISORDERS

Investigator(s): John K. Cullen, Jr., Ph.D., Assistant Professor; Emily A. Tobey, M.C.D., Research Associate; and Ann Fleischer, Research Assistant, Kresge Hearing Research Laboratory of the South, Department of Otorhinolaryngology; and Donald L. Rampp, Ph.D., Head, Department of Audiology and Speech Pathology, School of Allied Health Professions, Medical Center, Louisiana State University, New Orleans, Louisiana 70119.

Purpose: To explore the hypothesis that auditory perceptual disorders are predicated on an inability to process complex signals rather than on failure of cognitive or memorial functions.

Subjects: Children, ages 7 to 12, diagnosed as having auditory processing disorders (both sexes, but heavily weighted toward males).

Methods: Techniques include psychoacoustics, dichotic speech perception, and measures of memorial function. All experimental subjects are matched to control subjects by age and sex (and socioeconomic status to the extent possible). Results are analyzed by standard within-subject ANOVAs.

Findings: Children with auditory processing disorders have a right ear advantage equal to controls for dichotic speech tasks. Dichotic and recall performance for stop-vowel stimuli is poorer, but qualitatively similar, to normal subjects.

Duration: June 1975-continuing.

Cooperating group(s): National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare.

Publications: A paper presented at the 4th Annual Meeting of the International Neuropsychology Society, Toronto, Ontario, Canada, February 1976: Tobey, E. A.; Cullen, J. K.; and Rampp, D. L. Performance of children with auditory processing disorders on a dichotic stop-vowel identification task. (Reprints are available from the investigators.)

39-GC-2 GRAMMATICAL EVALUATION OF THE WRITTEN LANGUAGE OF APHASIC AND DEAF CHILDREN

Investigator(s): Richard Cromer, Ph.D., Research Psychologist, Developmental Psychology Unit, Medical Research Council, Drayton House, Gordon Street, London WC1H OAN, England.

Purpose: To evaluate grammatically the written language of aphasic and deaf children.

Subjects: 45 children: 10 receptive/expressive aphasic children, ages 7.6 to 16.0; 10 expressive aphasic children, ages 10.8 to 14.3; and 25 deaf children, ages 6.1 to 12.1.

Methods: The grammatical structure of the written descriptions of a story (shown by means of a puppet show) by receptive/expressive aphasic children of normal intelligence was compared with that of a group of deaf children, who were also learning language visually. A control group of expressive aphasic children in the same school, and learning by the same techniques as the other aphasic group, is intended to control for specific teaching differences.

Findings: Both the deaf and receptive/expressive aphasic children make many grammatical errors in their writing, but these errors differ. Aphasic children seem not to make use of structures requiring a true hierarchical planning of the output, whereas, deaf children do make use of these.

Duration: 1975-continuing.

Publications: A chapter in Wyke, Maria (Ed.) *Developmental dysphasia* (in preparation).

39-GC-3 INTELLECTUAL AND PERCEPTUAL-MOTOR CHARACTERISTICS OF TREATED MYELOMENINGOCELE CHILDREN

Investigator(s): Anthony J. Raimondi, M.D., Professor and Chairman; and Pegeen L. Soare, Ph.D., Associate and Research Psychologist, Division of Neurological Surgery, Medical School, Northwestern University; and Children's Memorial Hospital, 2300 Children's Plaza, Chicago, Illinois 60614.

Purpose: To investigate the intellectual and perceptual-motor development of a group of children with myelomeningocele, specifically, the observable differences in performance between those with and without shunted hydrocephalus; and to investigate the interrelationships between the site of the sac, hydrocephalus, and IQ.

Subjects: 173 children with myelomeningocele: 133 who had and 40 who had not developed hydrocephalus and were shunted. The average chronological age at the time of the first test of the myelomeningoceles with hydrocephalus was 3.9 years; for the myelomeningoceles without hydrocephalus, 7.3 years. Fifty-eight percent were female.

Methods: The instruments used were (1) Stanford-Binet Intelligence Scale, (2) Cattell Infant Intelligence Scale, (3) Vineland Social Maturity Scale, (4) Goodenough-Harris Draw-a-Man Test, and (5) Beery-Buktenica Developmental Test of Visual-Motor Integration. A sibling of the patient was tested, when possible, as a control. This is an ongoing longitudinal study.

Findings: Sixty-three percent of the myelomeningoceles with hydrocephalus had IQs above 80, whereas 87 percent of those without hydrocephalus had IQs above 80. Myelomeningoceles with hydrocephalus were significantly less intelligent than their siblings, while myelomeningoceles without hydrocephalus were not significantly different. Significant perceptual-motor deficits were found. The inverse relationship between the site of the sac and IQ, and the sensory level and IQ, were found to be dependent upon the association of higher level sacs and sensory loss with hydrocephalus.

Duration: 1967-continuing.

Cooperating group(s): (1) State of Illinois Department of Mental Health. (2) National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare.

Publications: (1) Soare, P. and Raimondi, A. J. Intellectual and perceptual-motor characteristics of treated myelomeningocele children. *American Journal of Diseases of Children,* 1977. (2) Raimondi, A. J. and Scare, P. Intellectual development in shunted hydrocephalic children. *American Journal of Diseases of Children,* 1974, 127, 664-671.

39-GC-4 EFFECTS OF ENDOCRINE ABNORMALITIES ON COGNITIVE AND BEHAVIORAL FUNCTIONING IN CHILDREN

Investigator(s): Thomas M. Achenbach, Ph.D., Research Psychologist; and Craig Edelbrock, Ph.D., Staff Fellow, Laboratory of Developmental Psychology, National Institute of Mental Health, Building 15K, 9000 Rockville Pike, Bethesda, Maryland 20014; and Roger Johnsonbaugh, M.D., Pediatric Endocrinologist, U. S. Navy.

Purpose: To determine whether sex hormones and thyroid hormones affect cognitive and behavioral functioning.

Subjects: 70 children, ages 5 to 16, who have thyroid or sex hormone abnormalities; and matched normal controls.

Methods: Children having hormone abnormalities are assessed on the Child Behavior Profile and a battery of cognitive measures. They are reassessed 3 months later following changes in hormone levels.

Findings: There is some indication that performance scores are elevated and verbal scores are depressed in children with thyroid abnormalities.
Duration: 1976-1978.
Cooperating group(s): National Naval Medical Center.

39-GC-5 PSYCHOMETRIC CHARACTERISTICS OF THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN-R (WISC-R) PERFORMANCE SCALE WITH DEAF CHILDREN

Investigator(s): Alfred Hirshoren, Ed.D., Coordinator for Doctoral Studies in Special Education; O. L. Hurley, Ph.D.; and K. Kavale, Ph.D., College of Education, University of Georgia, Athens, Georgia 30602.
Purpose: To determine whether the Wechsler Intelligence Scale for Children-R is valid and reliable when used with deaf children.
Subjects: 59 prelingually deaf children, mean age 10 years, 7 months.
Methods: The WISC-R Performance Scale, Hiskey-Nebraska Test of Learning Aptitude, and Stanford Achievement Tests were administered. Data were analyzed for test reliability and concurrent and predictive validity.
Findings: The internal consistency reliability of four of the subtests and the Performance IQ of the WISC-R were found to be similar to the reliability found by Wechsler with the standardization sample. Concurrent validity, demonstrated by the correlation with the Hiskey-Nebraska Test of Learning Aptitude, was found to be adequate. Predictive ability, defined by the correlation with achievement test results, was found to be statistically significant for six of the eight achievement areas.
Duration: October 1976-May 1977.
Cooperating group(s): Atlanta Area School for the Deaf.

39-GE-1 COGNITIVE REMEDIATION OF BLIND STUDENTS

Investigator(s): W. Beth Stephens, Head; Jo Hitt, Project Director; and Carl Grube; Joe Fitzgerald; and Richard Smith, Research Assistants, Special Education Program, University of Texas, Green Building 4.1, Box 688, Richardson, Texas 75080; and Katherine S[illegible]ns, Ph.D., Past Project Director, American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, Kentucky 40206.
Purpose: To test the effectiveness of utilizing Piagetian-based training to improve cognitive and reasoning development in congenitally blind children, in order to demonstrate that reasoning and interaction deficits can be remediated; to provide an educational system for the remediation of reasoning; and to develop and evaluate instructional modules for blind pupils.
Subjects: 32 congenitally blind children, ages 6 to 18, IQ range: 90 to 110. An equal number of subjects, matched by age and sex, were assigned to remedial and control groups. Each subsample contained eight male and five female subjects. In addition, a matched sighted sample was drawn using the same criteria.
Methods: Pre- and posttraining scores for experimental and control groups were compared. Student measures included (1) Social Interaction Schedule, (2) Piagetian Reasoning Measure, (3) Wide Range Achievement Test, and (4) Wechsler Intelligence Scale for Children-Verbal. Teacher evaluation measures included (1) Runner Studies of Attitude Patterns, (2) Flanders System of Interaction Analysis, and (3) Individual Cognitive

Demand Schedule. Analysis of variance and appropriate nonparametric statistics were utilized to determine the effects of treatment upon training group performance. Data were collected by personnel trained in the administration of Piagetian Reasoning Assessments.

Findings: Results suggested that reasoning deficits can be remediated. A comparison of pre- and posttest scores on Piagetian Reasoning Assessments indicated that the group which received 17 months of tutorial intervention experienced significant gains on 22 of 26 reasoning variables. Over the same time period, the blind control group was able to achieve significant gains on only 6 of 26 variables. A further comparison between blind experimental and sighted control groups indicated that the training group was able to eliminate all but three of the deficits identified in the previous project.

Duration: July 1974-September 1977.

Cooperating group(s): Bureau of Education for Handicapped; Office of Education; Education Division; U. S. Department of Health, Education, and Welfare.

Publications: (1) A monograph containing a review of Project Phases I and II, a *Teacher Training Manual*, and a *Student Remedial Activity Manual* will be published in Spring 1978. (2) A monograph containing *Piagetian Assessment and Scoring Manual* (Summer 1977) and a final report (Fall 1977) are available.

39-GE-2 THE EARLY EDUCATION OF HANDICAPPED CHILDREN IN THE UNITED KINGDOM

Investigator(s): Maurice Chazan, M.A., Professor; Alice Laing, Ph.D., Senior Lecturer; Michael Schackleton-Bailey, Ph.D., Senior Research Officer; and Glenys Jones, B.Ed., Research Officer, Department of Education, University College of Swansea, Hendrefoilan, Swansea, Wales, United Kingdom SA2 7NB.

Purpose: To identify all handicapped children (approximately 4 years old) in two local authority areas; to ascertain the educational needs of a sample of handicapped children selected from those initially identified; to attempt to find out how far these needs are being met; to investigate the help and support received and required by those responsible for the care and education of the children in the sample; to look particularly at those children in the sample who are receiving some form of education, in order to assess how well they are coping with the programs offered and what problems they present to teachers and other staff; and to consider the practical implications of the findings for educational policy and planning.

Subjects: Stage I: 8,000 children; Stage II: 1,000 children; and Stage III: 100 children. All children are 4 years old.

Methods: During Stage I, 8,000 children born in Berkshire and West Glamorgan between July 1 and December 31, 1972 were screened for handicaps or developmental problems relating to vision, hearing, locomotion, muscular control and coordination, mental ability, speech and language development, general health, and social/emotional adjustment. A brief screening schedule (Screening Schedule One) was completed by health visitors, headteachers, teachers, and/or playgroup leaders. During Stage II, a second schedule (Screening Schedule Two) was completed for 1,000 children who were identified in the preliminary screening as having a handicap or developmental problem likely to have an adverse effect on their school progress. This schedule aimed at defining handicaps in functional terms and was completed by health visitors or the staffs of schools or playgroups. In Stage III, on the basis of the information obtained through the second screening schedule, a sample of 100 children was selected for further study. This sample was representative of the various handicaps and consisted of home-based children as well as those attending special schools, ordinary nursery schools, or playgroups. Information on the children and their home and school environments was gathered using (1) a child observation schedule; (2) a child assessment battery; (3) a parents' questionnaire, used as a basis for interviewing each child's parents at home; (4) structured questionnaires, used to gather information from teachers and playgroup supervisors on both general and specific issues relating to the education of children with handicaps or developmental problems; (5) an amenities index, designed to obtain information on the extent to which the physical environment of school/playgroup is appropriate to meeting the needs of the children; and (6) an interaction analysis, used to study aspects of child-teacher and child-child interaction in a small subsample of handicapped children who are in a nursery school. In addition, personnel in schools and playgroups, which cater to the selected age group but do not contain any of the children in the sample, were asked to complete brief questionnaires in order to assess their attitudes toward admitting handicapped children. The practical difficulties relating to the integration of these children were also explored.

Findings: The needs of any handicapped child can be ascertained only by careful assessment of his specific strengths and weaknesses, and recommendations concerning his education should be made in the light of such assessment and in the context of the facilities available. Generalizations about the education of handicapped children are, therefore, of limited value.

Duration: May 1976-May 1978.

Cooperating group(s): (1) Department of Education and Science. (2) Warnock Committee on Special Education.

Publications: A final report and the instruments specially designed will be made available to research workers and official agencies concerned with handicapped children.

39-GE-3 CREATIVE TECHNOLOGICAL AIDS FOR THE LEARNING DISABLED AND PHYSICALLY HANDICAPPED CHILD

Investigator(s): Robert W. Mann, Ph.D., Whittaker Professor of Biomedical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139; and Mary Driscoll, M.B.A., O.T.R., President; and Nancy I. Kamil, M.A., O.T.R. (Research Coordinator, Department of Occupational Therapy, Kennedy Memorial Hospital), Vice-President, Creative Technological Aids, Inc., 30 Warren Street, Brighton, Massachusetts 02135.

Purpose: To design therapeutic devices for learning disabled and physically handicapped children; and to make them available to other clinical settings and schools.

Subjects: Each device is evaluated with up to 130 children, ages 4 to 14, whose diagnoses include learning disabilities, developmental delay, cerebral palsy, and behavioral disturbances.

Methods: An interdisciplinary team of occupational therapists, engineers, an industrial designer, and students collaboratively developed prototype electromechanical aids to enhance fine motor and adaptive learning skills of developmentally disabled and physically handicapped children. Twelve occupational therapists clinically evaluated each device for 6 months in therapy sessions. An evaluation form was completed for each child to assess the design and structure of each device, its motivational value, and its therapeutic value. Statistical treatment of the data is planned.

Findings: About 12 innovative devices for therapeutic use have come out of this project to date. Six of these devices have been evaluated by therapists as effective motivational/therapeutic aids and continue in use in clinical practice at Kennedy Hospital. One prototype, "Magic Lightpen," an eye-hand coordination aid, has been funded to be field tested in 30 clinical and special educational centers within the next year.

Duration: Summer 1973-continuing.
Cooperating group(s): Research Foundation, United Cerebral Palsy.
Publications: (1) Dalrymple, George F.; Kaufman, Roger E.; Driscoll, Mary C.; and Kamil, Nancy I. Bridging the humanist-mechanical gap: Creative technological aids for the disabled. *Proceedings of the Conference on Systems and Devices for the Disabled,* June 1976. Pp. 127-130. (2) Kaufman, Roger E. Electromechanical aids for handicapped children. *Proceedings of the 28th Annual Conference on Engineering in Medicine and Biology,* September 1975, P. 194. (3) Bullock, Ann; Dalrymple, George F.; and Dana, Janice M. Communication and the nonverbal, multi-handicapped child. *The American Journal of Occupational Therapy,* March 1975, 29(3), 150-152. (4) Driscoll, Mary Cook. Creative technological aids for the learning disabled child: An interdisciplinary project. *The American Journal of Occupational Therapy,* February 1975, 29(2), 102-105. (5) Bernstein, Marjorie H. Toys for the handicapped. *Sunday Herald Advertiser,* Pictorial Living Section, August 11, 1974. Pp. 14 and 18. (6) Mechanical aids for occupational therapy. *Strides,* Kennedy Memorial Hospital, Fall-Winer, 1973-74. P. 2.

39-GE-4 COMPREHENSIVE CARE OF CHILDREN WITH CANCER

Investigator(s): John R. Hartmann, M.D.; and Ronald L. Chard, Jr., Department of Hematology/Oncology, Children's Orthopedic Hospital, Seattle, Washington 98105.
Purpose: To evaluate methods of combining surgery, radiotherapy, and chemotherapy in the treatment of childhood neoplasia.
Subjects: Approximately 100 children a year under age 21 with a malignant disease.
Methods: A separate treatment protocol has been developed for each malignant disease of childhood, and in some instances, for different stages of individual neoplastic disorders. Several protocols were developed at Children's Orthopedic Hospital. Many of these studies are conducted by the Children's Cancer Study Group. See Study 39-AA-22.
Findings: Overall, long-term survival from childhood malignancy has improved from less than 10 percent to over 50 percent.
Duration: 1965-continuing.
Cooperating group(s): Children's Cancer Study Group.
Publications: Perspectives in pediatric oncology. *Journal of Pediatrics* (in press).

39-GE-5 REHABILITATION ENGINEERING PROJECTS FOR HANDICAPPED CHILDREN

Investigator(s): William Berenberg, M.D., Professor, Department of Pediatrics, Harvard Medical School (Children's Hospital Medical Center), 300 Longwood Avenue, Boston, Massachusetts 02115; and Robert Mann, Sc.D., Professor, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139.
Purpose: To utilize the advanced technology of the engineering sciences for the benefit of handicapped children; to bring together physicians of various disciplines and engineering colleagues in various specialities; and to investigate how acceptable the devices developed are to the clinician and/or patient who uses them.
Subjects: 3,000 handicapped boys and girls, ages birth through adolescence.
Methods: A low cost, lightweight, compact prototype of a muscle-activity feedback device has been designed, constructed, and tested. There is clear evidence in the literature and in past work to demonstrate that audioelectromyographic devices have been successful in augmenting the level of control of impaired muscles in research environments and under

the supervision of highly motivated personnel. However, to date no substantial assay has been done to investigate how acceptable these devices are to the clinician and/or patient who must use the device. Such an evaluation is necessary because it may lead to development and wide-spread use of devices that can assist in obtaining greater functional gains of impaired muscles as well as decrease the cost of treatment. The audioelectromyographic device is now being assessed in a clinical environment. Specifically, the device is being used (1) to enhance the extent of voluntary control a patient can maintain over a partially paralyzed hypertonic muscle, and (2) to provide effective means of monitoring the contribution of a specific muscle during therapeutic functional exercise so as to minimize the time required to execute the exercises. After the evaluation, the investigators will determine (1) whether the device is more effective in accomplishing the specified functions than the currently employed techniques and procedures, and (2) if the device should be produced commercially.

Findings: The investigators are able to analyze gait by advanced technologic means; utilize the EMG signal for external control and the measurement to the effect of medical and surgical therapy; quantify spasticity with new methods; and develop sensory surrogates for individuals with visual and hearing deficits.

Duration: 1972-continuing.

Cooperating group(s): Rehabilitation Service Administration for the United Cerebral Palsy Association.

39-GE-6 PILOT STUDY OF THE EFFICACY OF MAINSTREAMING—INTEGRATING HANDICAPPED CHILDREN

Investigator(s): Ronnie Gordon, M.S., Associate Professor of Clinical Rehabilitation Medicine, Director, Preschool and Infant Developmental Programs, Institute of Rehabilitation Medicine, Medical Center, New York University, 400 East 34th Street, Room RR-506, New York, New York 10016.

Purpose: To investigate the effectiveness of mainstreaming handicapped children.

Subjects: 132 preschool children, ages 3 to 6, in three types of settings: normal, integrated, and handicapped; their parents; and their school staff.

Methods: Observations are recorded in the classroom, transcribed, and analyzed in terms of quality and quantity of social interactions. Diagnostic educational work samples are videotaped. The Merrill-Palmer Scale of Mental Tests is administered to each child. Parents and teachers are audiotaped and interviewed; and questionnaires are administered, which are designed to elicit attitudes toward handicapped individuals and toward the integration of handicapped preschoolers in normal groups. Data will be examined to determine (1) the reliability of newly developed instrumentation, (2) whether children's interactions differ in various settings that put stress on social behaviors, and (3) whether there is a shift in attitudes of parents and staff.

Duration: September 1976-August 1978.

39-GE-7 SEMICIRCULAR CANAL STIMULATION IN CEREBRAL PALSY CHILDREN

Investigator(s): F. K. W. Chee, L.P.T., Graduate Student; J. R. Kreutzberg, L.P.T., Graduate Student; and David L. Clark, Ph.D., Associate Professor, Department of Anatomy, 1645 Neil Avenue, Ohio State University, Columbus, Ohio 43210.

Purpose: To determine the effects of semicircular canal stimulation on gross motor behavior in children with cerebral palsy.
Subjects: 23 preambulatory, cerebral palsy children, ages 2 to 6, both sexes.
Methods: Children were pretested for semicircular canal function and for level of gross motor development. Based on level of motor ability, they were assigned as matched pairs to control and treatment groups. Children assigned to the treatment group received 16 regularly spaced sessions of semicircular canal stimulation during the 4 weeks following the pretest. A posttest, identical to the pretest, was conducted during the 6th week. Analyses of covariance and t-tests were applied to the data.
Findings: A highly significant improvement (acceleration) of gross motor development was seen as a function of the sessions of semicircular canal stimulation. Improvements in the social/emotional behavior domain were also observed. Semicircular canal induced nystagmus responses were significantly different from those of normal infants and children. Habituation of postrotatory nystagmus was present.
Duration: January 1975-December 1977.
Cooperating group(s): (1) United Cerebral Palsy of Franklin County. (2) Easter Seal Society. (3) Ohio State University, Nisonger Center.

39-GE-8 PLAY LEARNING CENTERS FOR PRESCHOOL HANDICAPPED CHILDREN

Investigator(s): Louis Bowers, Ph.D., Professor, College of Education, University of South Florida, 4202 Fowler Avenue, Tampa, Florida 33620.
Purpose: To design, construct, and evaluate two play learning centers for preschool handicapped children.
Subjects: 50 mentally retarded preschool children and 20 cerebral palsied preschool children, ages 2 to 5.
Methods: Videotapes of the children's unstructured play were analyzed. The videotapes were made over a period of time at both of the play learning centers.
Findings: All handicapped children in the study were able to play actively and safely in the specially designed environments. Each child was able to move and use various areas in the play centers according to his/her ability level.
Duration: September 1974-completed.
Cooperating group(s): (1) United Methodist of Tampa Preschool Program. (2) United Cerebral Palsy of Tampa.
Publications: A 16 mm. film and written reports are available from the investigator.

39-GE-9 PROBLEMS IN INDIVIDUALIZING INSTRUCTION FOR HANDICAPPED CHILDREN

Investigator(s): Steven R. Forness, Ed.D., Professor-in-Residence; and Fred J. Frankel, Ph.D., Assistant Professor, Department of Psychiatry, Neuropsychiatric Institute, University of California, 760 Westwood Plaza, Los Angeles, California 90024.
Purpose: To analyze the variables associated with grouping several children, each with an individually prescribed program, into instructional groups so the individual qualities of each child's program are still maintained.
Subjects: Six girls and 10 boys, ages 2 to 9, functioning from 6 months to kindergarten level, whose diagnoses include autism, aphasia, mental retardation, etc.

Methods: Over a 9-month school year, the children were evaluated monthly in 15 areas of social, academic, and language development. Children were rescheduled each month into small group instructional settings depending on their common areas of development, rates of progress, and behavioral programs. Computer analysis of critical variables was used to construct a decision making model.
Findings: A computer program has been developed from observation of teacher decision making processes and has replicated children's schedules independently with a high degree of reliability.
Duration: July 1976-August 1977.
Cooperating group(s): Office of Education; U. S. Department of Health, Education, and Welfare.

39-GE-10 INDOMETHACIN THERAPY IN PREMATURE INFANTS WITH PATENT DUCTUS ARTERIOSUS AND RESPIRATORY DISTRESS SYNDROME

Investigator(s): William A. Neal, M.D., Associate Professor; and Martha Mullett, M.D., Assistant Professor, Department of Pediatrics, Division of Pediatric Cardiology, School of Medicine, West Virginia University, Morgantown, West Virginia 26506.
Purpose: To evaluate the effect of indomethacin therapy on ductal closure in premature infants with congestive heart failure.
Subjects: Premature male and female infants, gestational ages 29 to 40 weeks, with severe congestive heart failure.
Methods: Patients are selected using the same criteria used to select patients for surgical ligation of patent ductus arteriosus, severe congestive heart failure unresponsive to medical management. Indomethacin (0.25 to 0.50 mg/kg.) is administered orally or per rectum. The patient is then carefully evaluated for evidence of ductal closure and any adverse side effects.
Findings: As of May 1977, permanent closure of patent ductus arteriosus as a result of indomethacin therapy has been witnessed in only 2 of 11 patients; two patients responded with temporary closure of patent ductus, and seven patients had no response. Results indicate no serious side effects.
Duration: June 1976-June 1978.

39-GE-11 SEPSIS IN NEONATES

Investigator(s): William A. Neal, M.D., Associate Professor; and Martha Mullett, M.D., Assistant Professor, Department of Pediatrics; and Mark Wilson, Ph.D. Candidate, Department of Pharmacology, Medical Center, West Virginia University, Morgantown, West Virginia 26506.
Purpose: To enable diagnosis of sepsis by laboratory methods prior to the results of cultures.
Subjects: Neonates in an intensive care unit suspected of having sepsis.
Methods: Subjects' blood samples are evaluated for chemiluminescence of white cells. These data are then correlated with subsequent culture results.
Duration: June 1976-June 1978.

39-GE-12 ORAL KANAMYCIN AS PROPHYLAXIS FOR NECROTIZING ENTEROCOLITIS

Investigator(s): Martha Mullett, M.D., Assistant Professor; and William A. Neal, M.D., Associate Professor, Department of Pediatrics, Medical Center, West Virginia University, Morgantown, West Virginia 26506.
Purpose: To evaluate the use of kanamycin taken orally to prevent necrotizing enterocolitis in a high risk infant population.
Subjects: All neonates weighing less than 1,800 grams in a neonatal intensive care unit who have not been fed.
Methods: Infants in the study were randomly assigned to either a control group receiving a placebo or to a treatment group receiving 15 mg. per kilogram per day in a t.i.d. dose of kanamycin. Physicians and nurses taking care of the patients were not aware of the medication. The incidence of necrotizing enterocolitis in each group was obtained. Bacteriologic studies of stool samples of control and treatment patients were performed.
Duration: June 1976-December 1977.

39-GE-13 DISSEMINATED INTRAVASCULAR COAGULOPATHY IN NEWBORNS

Investigator(s): Martha Mullett, M.D., Assistant Professor; and William A. Neal, M.D., Associate Professor, Department of Pediatrics, Medical Center, West Virginia University, Morgantown, West Virginia 26506.
Purpose: To develop a standard methodology for diagnosing disseminated intravascular coagulopathy in newborns; and to evaluate two treatment regimens to be used in the treatment of disseminated intravascular coagulopathy in newborns.
Subjects: Infants in a neonatal intensive care unit.
Methods: Infants with disseminated intravascular coagulopathy by the hospital's criteria were randomly placed based on hospital number into one of two treatment groups Group I was treated with replacement therapy with fresh frozen plasma and kryoprecipitate. Group II was treated with an exchange transfusion with whole blood followed by heparin therapy.
Findings: Both methods of therapy appear to correct the coagulopathy.
Duration: October 1975-July 1977.

39-GE-14 FORMATIVE EVALUATION STUDY OF THE BLISSYMBOL SYSTEM

Investigator(s): Harry Silverman, Ph.D., Associate Professor, Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario, Canada M5S 1V6; and Shirley McNaughton, Program Director; and Barbara Kates, Associate Program Director, Blissymbolics Communication Foundation, 862 Eglinton Avenue East, Toronto, Ontario, Canada M4G 2L1; and Dale Sutherland, Speech Pathologist; Barbara Arouchick, Research Assistant; Paula Ashmead, Research Assistant; and Geb Verburg, Analyst, Ontario Crippled Children's Center, 350 Rumsey Road, Toronto, Ontario, Canada M4G 1R8.
Purpose: To conduct a formative evaluation of the effectiveness of the symbol system by collecting information from instructors in a variety of settings.
Subjects: 157 subjects from 32 settings, ages 3 to 30+, approximately half female: 90 percent with cerebral palsy, lacking functional speech; 67 percent in wheelchairs. Intellectual assessments of the subjects were not accurate because of handicap severity.
Methods: Participating instructors were selected from those known to the organization.

Instructors were requested to fill out questionnaires on each child's social, academic, communication, and psychological status five times a year. There were additional items on physical well-being. Interviews were utilized as well. Because of time restrictions, only data from initial and final recordings were examined. Regression analysis determined the most useful predictors of skill in symbols.

Duration: December 1974-completed.

Cooperating group(s): Ontario Ministry of Education.

Publications: Information is available from Dr. Silverman.

39-GE-15 COMPREHENSIVE TRAINING PROGRAM FOR INFANTS AND YOUNG CEREBRAL PALSIED CHILDREN

Investigator(s): Michael J. Murnane, M.S., Project Director; and Rona P. Alexander, Ph.D., Assistant Director, Comprehensive Training Program for Infant and Young Cerebral Palsied Children, Demmer-Kiwanis Children's Division, Curative Workshop of Milwaukee, 10437 West Watertown Plank Road, Milwaukee, Wisconsin 53226.

Purpose: To improve abnormal sensorimotor behavior so that speech behavior can develop; and to develop the linguistic skills of infants and young cerebral palsied children.

Subjects: Children, age 3 or younger, who have moderate to severe neuromotor handicaps and physical impairment severe enough to limit motor activity.

Methods: Project activities focus on two instructional programs: the Pre-Speech Program, and the Language Stimulation Program. The goal of the Pre-Speech Program is to correct or modify abnormal sensorimotor behavior which is interfering with the development of speech behavior. Following an initial evaluation, curricula are designed for each child. Specific therapy techniques are demonstrated to parents by a therapist. Parents then carry out these techniques at home. Treatment involves all areas prerequisite to normal speech development: postural tone and movement patterns, oral reactions, respiration and phonation, articulation, and language development behaviors relating to speech development. The Language Stimulation Program consists of three levels. Level I concentrates on prelinguistic skills such as attention, sensory tolerance, and sensory awareness of stimulation. Level II is concerned with early receptive language skills. Level III centers on more complex receptive skills and early expressive skills. A battery of tests is administered to determine current level of functioning in receptive and expressive language. Parents are interviewed to assess language performance in the home. Children are then treated in small groups or individually. Parent involvement in the program is stressed. Three questionnaires were developed to help staff effectively interact with families: Parents' Understanding of Terms (relating to cerebral palsy), Parents' Evaluation of Their Child's Handicap, and Parent Attitude Survey.

Findings: An evaluation of child progress was performed for children who had been in the Language Stimulation Program during 1971-1974. Pre- and posttest performance was assessed for 36 children receiving treatment for 1 year; for 20 children who received treatment for 2 years; and for five children who were in the program for 3 years. Pre- and posttest data were gathered using the Bzoch-League Receptive-Expressive Emergent Language Scale, the Mecham Verbal Language Development Scale, the Preschool Attainment Record, the Preschool Language Scale and the Peabody Picture Vocabulary Test. For the 1-year treatment group, the mean gain ranged from 8.1 to 12.5 months. For the 2-year treatment group, the mean gains across the five instruments ranged from 14.5 to 23.7 months. For the 3-year treatment group, the mean gain ranged from 21.2 to 40.7 months. In light of the severity of handicaps served, it appears that progress has been considerable and consistent over 3 years of treatment. In fact, the mean number of months gained by children on three of the five instruments (the Mecham, PLS, and PPVT) approaches that which would be expected for normal growth; i.e., 12 months gain over 12 months of time. A pre-post assessment was completed for children enrolled in the Pre-Speech Program using the Sensory Motor Evaluation of the Speech Mechanism, a 7-point rating scale, where 0 indicated absence of desired behavior and 7 indicated normal behavior for a given age. For 47 children who received 1 full year of treatment, pre-post gains were made in all target behavior areas ranging from +.05 on phonation to +1.2 on feeding behaviors. For 14 of the 47 children who remained in the program for a second year, a mean gain of +.88 was reported.

Duration: Fall 1969-continuing.

Cooperating group(s): Title VI; Bureau of Education for Handicapped; Office of Education; U. S. Department of Health, Education, and Welfare.

Publications: A description of the comprehensive training program for infants and young cerebral palsied children is available from: Demmer-Kiwanis Children's Division, Curative Workshop of Milwaukee.

39-GE-16 MODEL PROGRAM FOR RETRIEVAL AND ACCELERATION OF PROMISING YOUNG HANDICAPPED AND TALENTED CHILDREN

Investigator(s): Merle B. Karnes, Ed.D., Professor, Department of Special Education, Institute for Child Behavior and Development, University of Illinois, Colonel Wolfe School, 403 East Healey Street, Champaign, Illinois 61820.

Purpose: To develop and disseminate a model program for identifying and providing preschool programs for handicapped children with potential or manifest talents.

Subjects: 25 boys and girls, ages 3 to 5, who represent different socioeconomic levels. Subjects must be handicapped in at least one category and have been determined to be, or have the potential to be, talented in one or more of the following areas: general intellectual, specific academic, creativity, psychomotor, visual and performing arts, social/leadership.

Methods: Children will be enrolled in one of three types of model programs: Open Education, Structure of Intellect Based, or Modified. Data collection is based on the case study method with multiple data for each child. Dimensions being studied include developing an awareness of need, location, screening, intake evaluation, classroom diagnosis, classroom screening, classroom programming (including adaptations and modifications), materials, classroom characteristics, family involvement, follow through, and evaluation of progress.

Findings: A number of models, procedures, and instruments have been devised and are being validated.

Duration: July 1975-continuing.

Cooperating group(s): (1) Bureau of Education for Handicapped; Office of Education; U. S. Department of Health, Education, and Welfare. (2) University of Illinois, Joint Early Education for Preschool Handicapped (JEEPH) Project.

39-GE-17 TREATMENT OF PAIN IN CHILDREN WITH CANCER THROUGH HYPNOSIS

Investigator(s): Ernest R. Hilgard, Ph.D.; Josephine R. Hilgard, M.D., Ph.D.; and Arlene Morgan, Ph.D., Department of Psychology, Stanford University, Stanford, California 94305.

Purpose: To alleviate pain in procedures such as bone marrow aspirations; to alleviate long-term pain arising from growth of tumors; and to assist in the control of ancillary symptoms such as anxiety, insomnia, and digestive disturbances.

Subjects: Children, ages 14 through 18, at Children's Hospital at Stanford, who were referred for relief of pain.

Methods: Using the Stanford Children's Scale of Hypnotic Responsiveness, the correlation between degree of hypnotizability and relief of various symptoms is being investigated.

Findings: For relief of ancillary symptoms such as anxiety, insomnia, etc., low to moderate hypnotizability will suffice. The relation of pain relief to degree of hypnotizability is still uncertain.

Duration: September 1975-August 1978.

Cooperating group(s): Stanford University, Children's Hospital.

39-GF-1 PARENTAL PERCEPTION OF HANDICAPPED CHILDREN AND ITS RELATION TO SERVICES

Investigator(s): William H. Button, Ph.D., Research Coordinator, United Cerebral Palsy of Queens, 81-15 - 164th Street, Jamaica, New York 11432.

Purpose: To investigate the impact of family and social services on parental perception of growth and development.

Subjects: 50 families with handicapped children, ages 5 to 14.

Methods: Interview data and preschool attainment record scores, furnished by parents and teachers before and after a 1-year period, were analyzed.

Duration: January 1976-October 1977.

39-GF-2 PARENTAL PERCEPTION OF HANDICAPPED CHILDREN'S GROWTH AND DEVELOPMENT

Investigator(s): William H. Button, Ph.D., Associate Professor, State University of New York at Stony Brook and Research Consultant, United Cerebral Palsy of Queens, 81-15 - 164th Street, Jamaica, New York 11432.

Purpose: To identify and investigate interaction among (1) programmatic and service dimensions of an interdisciplinary handicapped children's school, (2) family structure, and (3) change over time in parental perception of their child's physical, social, and intellectual development.

Subjects: 40 handicapped children and their families. Children were ages 6 to 16, severely handicapped, with cerebral palsy and related developmental disabilities predominating. All were in special classes in a school setting.

Methods: Level and change in perceived growth and development of each child was measured through repeated interviews with the parents using the Preschool Attainment Record. Communication and involvement with school programs and services data were gathered through parent self-reports and questionnaires completed by professional staff. Analysis focused on discrepant views of parents and teachers on growth and development and the impact of the discrepancy upon the child.

Duration: March 1976-November 1977.

39-GF-3 NATURALISTIC OBSERVATIONS OF SOCIAL AND EMOTIONAL BEHAVIOR IN TWO COGNITIVELY ORIENTED MAINSTREAMED PRESCHOOL CLASSROOMS

Investigator(s): Jean M. Ispa, Ph.D., Research Associate; and Robert D. Matz, Ph.D., Research Associate, High/Scope Educational Research Foundation, 600 North River Street, Ypsilanti, Michigan 48197.

Purpose: To determine whether or not the frequency and style of classmates' interactions are affected by the presence of handicaps in one or more of them; and to determine if and how teachers relate differently to handicapped and nonhandicapped children.

Subjects: Four preschool teachers and 28 children attending two High/Scope First Chance preschool classrooms. The children included eight handicapped boys, two handicapped girls, eight nonhandicapped boys, and ten nonhandicapped girls. The handicapped children showed delayed mental development, moderate perceptual or sensory impairment, and/or emotional disburbances.

Methods: Observations were made by two nonparticipant observers using a standard 30-second time-sampling procedure. Each child was observed in the classroom for four 12-minute periods. Observations were made during work time, a period when children freely chose their activities and playmates. Behavior checklists included behaviors measuring general affective state, the tenor of social behavior, and the level of social play. Data were analyzed using t-tests to determine differences in frequencies of behavior and differences between observed and expected frequencies with which behaviors were directed to handicapped and nonhandicapped children.

Findings: Handicapped and nonhandicapped children were socially well-integrated. Teachers' interactions with handicapped children were similar to their interactions with nonhandicapped children.

Duration: December 1975-completed.

Cooperating group(s): Bureau of Education for Handicapped; Office of Education; U. S. Department of Health, Education, and Welfare.

Publications: Ispa, J. and Matz, R. D. Integrating handicapped preschool children within a cognitively oriented program. In M. Guralnick (Ed.), *Early intervention and the integration of handicapped and nonhandicapped children.* Baltimore: University Park Press (in press).

Mentally Retarded

39-HA-1 ANALYSIS OF THE CRIMINAL JUSTICE PERSONNELS' UNDERSTANDING OF MENTAL RETARDATION AND THE MENTALLY RETARDED OFFENDER

Investigator(s): Jeffrey Schilit, Ph.D., Associate Professor, Department of Exceptional Children Education, New York State University College, 1300 Elmwood Avenue, Buffalo, New York 14222.

Purpose: To determine the current feelings, attitudes, and understandings of the criminal justice system and its personnel toward the mentally retarded offender and the topic of mental retardation.

Subjects: 50 judges, 100 lawyers, and 150 police officers.

Methods: A 50-question survey instrument was developed to survey (1) biographical information (e.g., the respondent's age, education level, years on the job); (2) the respondent's experience with mental retardation; (3) attitudes toward the professional opinions of retardation and retarded offenders; and (4) feelings toward required and optional in-

struction on the mentally retarded. Data were analyzed via analysis of variance and through various other statistical procedures.
Duration: January 1977-September 1977.

39-HC-1 RELATIONSHIPS BETWEEN FUNCTIONAL SKILLS AND SOCIAL BEHAVIORAL INDICES USING OBSERVATIONAL MEASURES

Investigator(s): Jerri Linn Phillips, M.A., Research Analyst; and Earl E. Balthazar, Ph.D., Director, Behavioral Sciences Research, Central Wisconsin Center for the Developmentally Disabled, 317 Knutson Drive, Madison, Wisconsin 53704.
Purpose: To examine functional independence in eating, toileting, and dressing in relation to indicators of behavioral disturbance.
Subjects: 457 ambulant, severely and profoundly retarded institutional residents.
Methods: The Balthazar Scales of Adaptive Behavior, Section I (Scales of Functional Independence) and Balthazar Scales of Adaptive Behavior, Section II (Scales of Social Adaptation) were administered concurrently. Functional independence was measured in eating, toileting, and dressing skills. Behavioral indices derived from the BSAB II were: The Sum of Adjusted Behavior (an aggregate measure of social adjustment in a relatively unstructured environment); Language Indices (to measure everyday communicative proficiency); Index of Socially Ambivalent Behavior (to indicate behavioral interference with constructive social relationships); and the Stereopathy Index (to measure responsiveness to external cues as associated with stereotyped mannerisms).
Findings: Older residents performed better on all functional skills. Toileting and eating scores were higher for subjects who had been institutionalized longer. Sex was unrelated to eating and toileting, and age-specific dressing performance was similar for males and females. Each functional skill was related to the other functional skills, language proficiency, and the sum of adjusted behavior. Social ambivalence appears to interfere with functional skill performance, especially among individuals scoring high on the Sum of Adjusted Behavior. Stereopathy was previously reported to reduce the usual level of language use but not the highest attained level of language skill. Where stereopathic individuals have acquired social and functional skills, their failure to utilize them appropriately *may* lead to prolonged institutionalization, resulting in the observed positive relationship between skill performance and stereopathy for those who scored high on the Sum of Adjusted Behavior.
Duration: 1967-1977.
Publications: (1) *Mental Retardation,* 1977 (in press). (2) Phillips, J. L. and Balthazar, E. E. Social compatability in more severely retarded, institutionalized individuals: An index of socially ambivalent behavior (Abstract). *Mental Retardation,* 1976, 14(3), 46-47. (3) Balthazar, E. E. *The Balthazar Scales of Adaptive Behavior. Section I: The Scales of Functional Independence* (Rev. Ed.). Palo Alto, California: Consulting Psychologists Press, 1976. (4) Balthazar, E. E. and Phillips, J. L. Social adjustment in more severely retarded, institutionalized individuals: The Sum of Adjusted Behavior. *American Journal of Mental Deficiency,* 1976, 80(4), 454-459. (5) Balthazar, E. E. *The Balthazar Scales of Adaptive Behavior. Section II: The Scales of Social Adaptation.* Palo Alto, California: Consulting Psychologists Press, 1973. (6) A complete report is available from Dr. Balthazar.

39-HC-2 DEVELOPMENT OF A SEX KNOWLEDGE AND ATTITUDE TEST FOR THE MODERATELY AND MILDLY RETARDED

Investigator(s): Barbara Edmonson, Ed.D., Associate Professor; and Joel Wish, M.A., Resident Associate, Nisonger Center, Ohio State University, 1580 Cannon Drive, Columbus, Ohio 43210.
Purpose: To develop a test for use with retarded individuals to sample their knowledge of critical areas of sociosexual information and their attitudes toward sexual practices.
Subjects: 50 female and 50 male residents of a state institution for the retarded, and 50 male and 50 female residents in their own or group homes. The subjects are ages 18 to 42, with IQs of 23 to 74, and Adaptive Behavior Levels II, III, IV.
Methods: Critical areas of knowledge were identified by 50 expert respondents. Questions were formulated to assess knowledge in these areas. Responses to questions usually required the subject to point to a picture or indicate "Yes" or "No." Test-retest reliability and internal consistency were analyzed. Test usefulness was examined by comparing the responses of institutionalized subjects with responses of community resident subjects.
Findings: Test-retest reliability, expressed as mean percent agreement, ranged from 78 to 90 percent for knowledge items, and 76 to 91 percent for attitude items. Internal consistency information and differences in knowledge and attitudes between the four groups are reported. Women differed from men, and institutionalized subjects differed from community residents with respect to a number of knowledge and attitude items.
Duration: July 1975-completed.
Cooperating group(s): (1) Bureau of Education for Handicapped; Office of Education; U. S. Department of Health, Education, and Welfare. (2) National Association for Retarded Citizens.
Publications: Final Report of U. S. Department of Health, Education, and Welfare Project No. G007500382, Columbus, Ohio: Nisonger Center, Ohio State University, 1977. Edmonson, B.; Wish, J.; and Fiechtl, K. Development of a sex knowledge and attitude test for the moderately and mildly retarded.

39-HC-3 LEARNING PATTERNS OF CHILDREN WITH PHENYLKETONURIA

Investigator(s): Mathias Hagovsky, Ph.D., Staff Psychologist, Child Development Center, Children's Hospital of Newark, 15 South 9th Street, Newark, New Jersey 07102.
Purpose: To determine whether irregularities exist in the learning profiles of children who are treated for phenylketonuria (PKU) and have established high IQs.
Subjects: 23 PKU children, ages 5 to 13, treated for the condition, who have IQs above the level of retardation; and 23 non-PKUs matched on age, sex, race, and occupation of head of household and statistically equated for IQ.
Methods: Employing a multivariate analysis of covariance, intelligence factors (measured with the Wechsler Intelligence Scale for Children-R) were used in variation according to their relationship to dependent variables measured by the Illinois Test of Psycholinguistic Abilities (ITPA), the Wepman Auditory Discrimination Test, and the Developmental Test of Visual Motor Integration (VMI) for different comparisons of the groups.
Findings: Through scores on the ITPA and on the Wepman, the groups were found to differ significantly on visual closure, visual reception, and manual expression. Suggestive evidence for differences on the VMI was seen when both groups performed poorly. In all cases, the PKU subjects performed less well.
Duration: December 1975-completed.
Cooperating group(s): (1) Fordham University, Lincoln Center. (2) United Hospitals Medical Center, PKU Center, Pediatric Clinic.

39-HG-1 DOWN'S SYNDROME INFANT-PARENT PROGRAM, CENTER ON HUMAN DEVELOPMENT, UNIVERSITY OF OREGON

Investigator(s): H. D. Fredericks, Ph.D., Associate Director; Robert H. Schwarz, Ph.D., Teaching Research Director; and Marci J. Hanson, Doctoral Candidate, Coordinator, Down's Syndrome Infant-Parent Program, Center on Human Development, University of Oregon, Clinical Services Building, Eugene, Oregon 97403.
Purpose: To attempt to keep Down's syndrome children within the normal range of development through intervention beginning at birth.
Subjects: Seven male and eight female Down's syndrome infants, ages 0 to 3, who live in Western Oregon.
Methods: The focus of the program is on parent involvement. Trained parent observers collected data on their infant teaching programs on a daily trial-by-trial basis. Parents independently set goals, wrote programs, and evaluated their progress based on the data they collected. Multiple baseline designs were used to determine if functional relationships exist between training procedures and infant performance gains. A Caregiver-Infant Interaction Code and Infant Activity Level Checklist were also developed.
Findings: Development of participating infants is close to normal range (see Publications).
Duration: September 1974-May 1977.
Publications: (1) Hanson, M. J. and Heidenreich, S. M. *The Down's Syndrome Infant-Parent Program: An approach to parent-professional coordination* (submitted for publication). (2) Hanson, M. J. *Teaching your Down's syndrome infant: A guide for parents.* Eugene, Oregon: University of Oregon Press (in press). (3) Hanson, M. J. and Bellamy, G. T. Continuous measurement of progress in infant intervention programs. *Education and Training of the Mentally Retarded,* 1977, 11(5), 52-58. (4) Hanson, M. J. Evaluation of training procedures used in a parent implemented intervention program for Down's syndrome infants. *AAESPH Review,* 1976, 1(7), 36-52.

39-HG-2 THE LINGUISTIC ENVIRONMENT OF LANGUAGE DELAYED CHILDREN

Investigator(s): Gerald James Mahoney, Ph.D., Assistant Professor, Department of Education, 124 Moore, University of California, Los Angeles, California 90024.
Purpose: To compare patterns of interaction of mothers and their mentally retarded children and mothers and their nonretarded children during the initial period of language acquisition; and to delineate specific factors in mother-child interaction that affect the rate of language development.
Subjects: Four female and three male Down's syndrome children and four female and three male nonretarded children, ages 16 to 24 months; and their mothers.
Methods: Naturalistic observations were made bimonthly of mother-child interaction during free play in the subjects' homes. Assessment instruments included the Uzgiris-Hunt Scales.
Duration: March 1977-March 1978.
Publications: Mahoney, G. L. Ethological approach to delayed language development. *American Journal of Mental Deficiency,* 1975, 80, 139-148.

39-HH-1 AN INVESTIGATION INTO THE EFFECT OF HOME BASED INTERVENTION WITH SEVERELY SUBNORMAL PRESCHOOL CHILDREN

Investigator(s): A. D. B. Clarke, Ph.D., Professor; and S. A. Sandow, B.A., Research Assistant, Department of Psychology, University of Hull, Cottingham Road, Hull, England.

Purpose: To assess the effect of long-term intervention on developmental levels attained by children and on parental satisfaction; and to compare the efficiency of frequent vs. infrequent visits.

Subjects: 29 boys and 15 girls, ages 1.5 to 3 initially, who are severely subnormal emotionally or educable subnormal mongols.

Methods: Subjects were divided into three groups. Group A received two weekly visits lasting up to 2 hours; Group B received eight weekly visits lasting up to 2 hours. Group C was the control group and received no visits. Visits included instructing mothers in cognitive, language, and self-help training; emotional and social support for parents of profoundly retarded children; and information and other services. Annual tests are being given until the subjects reach school age. Tests used include the Cattell Infant Intelligence Scale, Vineland Social Maturity Scale, Peabody Picture Vocabulary Test, and the Gunzburg Progress Assessment Chart of Social Development.

Findings: Group A appears to have made greater gains than Group B, though differences are not significant. Group C has not yet been tested.

Duration: September 1974-April 1978.

Cooperating group(s): (1) J. Rowntree Trust. (2) Royal Victoria Hospital, Newcastle-upon-Tyne, Child Development Centre.

39-HH-2 NONVOCAL COMMUNICATION FOR NONVERBAL RETARDED CHILDREN

Investigator(s): Ruth F. Deich, Ph.D., Director; and Patricia M. Hodges, Ph.D., Co-director, Institute for Research in Human Growth, 1737 Finecroft Drive, Claremont, California 91711.

Purpose: To teach a unit of patients at a hospital for the mentally retarded to communicate with each other and with staff by means of a symbol system.

Subjects: 57 patients, with a chronological age range of 5 to 17 years, and a mental range of below 2 to approximately 7 years. Most subjects were nonverbal, though some had simple speech.

Methods: Forty-seven subjects were taught a symbol system based on Premack's in which each plastic geometric shape stands for a word. Symbols are strung together to form sentences. Two control groups of 10 each were given equivalent attention but no training. Pre- and posttests were administered to determine changes in behavioral, linguistic, and intellectual functioning.

Findings: After 6 months those with mental ages below 2 years have trouble generalizing and learning words other than nouns. Those with higher mental ages learned to communicate with meaningful sentences.

Duration: June 1976-October 1977.

Cooperating group(s): (1) Pacific State Hospital. (2) Bureau of Education for Handicapped; Office of Education; U. S. Department of Health, Education, and Welfare.

Publications: A report is available from the investigators.

39-HJ-1 RESEARCH AND DEVELOPMENT OF SUBJECTIVE VISUAL ACUITY ASSESSMENT PROCEDURES OF SEVERELY HANDICAPPED PERSONS

Investigator(s): Charles R. Spellman, Ed.D., Director, Educational Research and Development, Bureau of Child Research, University of Kansas, Parsons, Kansas 67357.
Purpose: To provide procedures for testing the visual acuity of persons unable to perform in the standard optometric evaluation.
Subjects: 32 severely retarded and 10 orthopedically handicapped individuals of all ages, and 7 preschool children.
Methods: Both single subject and group designs are included to compare different discrimination training procedures and their effect on training time, number of errors, and threshold measurement. Data collection incorporates both machine recorded data and observation and reliability data. Statistical treatment varies according to the research design.
Findings: Reliable and replicable acuity threshold can be obtained after discrimination training with severely handicapped persons. Lens prescriptions can then be verified by comparing initial screening results (without lens) with the lens prescription results for both near and far point visual acuity thresholds.
Duration: July 1976-June 1979.
Cooperating group(s): Bureau of Education for Handicapped; Office of Education; U. S. Department of Health, Education, and Welfare.

39-HJ-2 APPROACHES TO IMPROVED CARE OF INSTITUTIONALIZED EPILEPTIC PERSONS

Investigator(s): William B. Svoboda, M.D., Director; and A. J. Fakadej, M.D., Co-Director, Department of Pediatric Neurology, West Virginia Medical Center, West Virginia University, Morgantown, West Virginia 26506.
Purpose: To evaluate the approaches to and results of seizure care; and to develop alternative approaches toward improving the care of institutionalized epileptics.
Subjects: 205 patients identified as epileptic from a pediatric institutionalized population of severely to profoundly retarded children and adults, ages 3 to 46. Other handicaps were found.
Methods: The program approach was aimed at helping the staff, through education and demonstration, to improve the diagnostic approaches and management of the institutionalized epileptic. The classification, suspected etiology, and frequency of each seizure, the anticonvulsant therapy, and the functioning of each patient suspected as being epileptic were noted (1) at the inclusion of the patient in the study, (2) after the initial evaluation by the neurologist, and (3) after a minimum of 6 months of active seizure monitoring and care. Efforts to improve seizure monitoring and care were developed via use of a simplified, behavior oriented observation chart, a central demonstration seizure clinic within the institution, the development of audiovisual training for the staff personnel, and the use of a reference manual on epilepsy. The effectiveness of the program was measured by comparing the accuracy of the diagnosis and of the seizure monitoring, the changes in the seizure frequency, the changes and appropriateness of anticonvulsant selection and dosages, and the change in patient functioning at the three interview periods. Evaluation measures were made by the directors and by an independent evaluator.
Findings: By 22 months, 74 percent of the patients were seizure free, and only 3 percent had significant seizure problems. There emerged a need for better diagnostic facilities and support.

Duration: December 1974-June 1977.
Cooperating group(s): This study was part of a collaborative project involving the six states of Region HEW III, under the direction of Dr. John M. Freeman, Director, J. F. K. University Affiliated Center, Johns Hopkins University and funded by the U. S. Department of Health, Education, and Welfare.
Publications: (1) Copies of the reports of all participants may be obtained from: Developmental Disabilities Training and Technical Assistance Center, c/o Ms. Muriel Rose, School of Social Work and County Plans, University of Maryland, 525 West Redwood Street, Baltimore, Maryland 21201. (2) A practical multidisciplinary manual on the care of the epileptic child and his consequent problems, including problems of learning, behavior, and psychosocial adjustment, will be accompanied by audiovisual slide units for each chapter of the cartooned manual. Information is available from the investigators.

Gifted

39-IA-1 VALUES, ATTITUDES, AND ACHIEVEMENT OF INTELLECTUALLY GIFTED ADOLESCENT FEMALES

Investigator(s): Warren E. Dederick, Ed.D., Associate Professor, Program Head, Graduate Program in Educational Administration and Supervision, School of Education, Brooklyn College, City University of New York, Brooklyn, New York 11210; and Judith G. Dederick, Ph.D., Associate Professor; and Sue Roseberg Zalk, Ph.D., Assistant Professor, Hunter College, City University of New York, New York, New York 10021.
Purpose: To investigate the effects of coeducation on the values, attitudes, and achievement of gifted adolescent females previously attending an all girl school.
Subjects: 1,000 gifted females, grades 7 to 11, attending Hunter College High School in New York City.
Methods: The investigators are attempting to determine whether there are any differences in the values, attitudes, and achievement of gifted adolescent females as a result of coeducation. Measurement instruments include Survey of Interpersonal Values, Mooney Problem Checklist, Depression Adjective Checklist, standardized achievement tests, and researcher designed instruments.
Duration: Spring 1975-Spring 1980.
Cooperating group(s): (1) Hunter College High School. (2) Hunter College, George M. Schuster Research Grant.

39-IA-2 DEVELOPMENT OF AN EXEMPLARY CAREER EDUCATION MODEL FOR THE GIFTED AND TALENTED

Investigator(s): Sharon Colson, M.Ed., Staff Development Specialist; and Christopher Borman, Ed.D., Director, Center for Career Development and Occupational Preparation; and William Nash, Ed.D., Associate Professor, Department of Educational Psychology, College of Education, Texas A & M University, College Station, Texas 77843.
Purpose: To demonstrate the most effective methods and techniques in career education for gifted and talented students.

Subjects: 11 girls and 9 boys (and 5 alternates), ages 16 to 18, chosen from 46 nominees on the basis of multiple screening criteria for gifted and talented students. All had reached senior standing at the time of screening.

Methods: Phase 1 consisted of Guidance Laboratory Experience. Through self-investigation and evaluation procedures, participants and alternates identified tentative career interest areas. All activities were conducted in the Educational Psychology Laboratory at Texas A & M University during the regular school day. In Phase 2, Mentorship Laboratory Experience, individual participants were placed in observer roles in career fields identified during Phase 1. A shadowing experience under the direction of a Texas A & M professor of advanced studies was afforded each participant and alternate during the regular school day. Phase 3 was a Working Internship Experience. Based on the information and experience acquired during Phases 1 and 2, the individual students were placed in on-site work experiences. The work sites were under the direction of persons engaged in the career field the student had tentatively selected. The student was a paid worker during this phase. A series of pre- and posttests, as well as evaluations by participants, mentors, teachers, parents, and site supervisors has been collected and analyzed.

Duration: July 1976-June 1977.

Cooperating group(s): (1) A & M Consolidated Independent School District. (2) Office of Career Education; Office of Education; U. S. Department of Health, Education, and Welfare.

39-IA-3 INDIVIDUAL AND FAMILY CHARACTERISTICS OF GIFTED STUDENTS

Investigator(s): Roy L. Cox, Ed.D., Professor and Head, School of Education and Psychology, Western Carolina University, Cullowhee, North Carolina 28723.

Purpose: To provide a check of existing data and increase knowledge and understanding of gifted children.

Subjects: Children with IQ scores of 130 and above on the Stanford-Binet, who were at least 2 years advanced on some type of achievement test. Children ranged from 5th to 10th grade students.

Methods: A preliminary survey was done involving 456 children. Information on the subjects in this study was gathered from a detailed home report completed by parents and from the subjects themselves upon acceptance to a summer program for gifted students. Data will be compared to existing norms for the general population and to results from other studies (especially the Terman study).

Findings: Data from the preliminary survey generally agreed with other studies, including the long-term Terman studies. The data are newer, the numbers larger, and the information more specific in certain areas than those of a number of the studies on characteristics of gifted children.

Duration: 1975-continuing.

Publications: Cox, Roy L. Background characteristics of 456 gifted students with IQ scores of 130 and above. *Gifted Child Quarterly*, Summer 1977.

39-IA-4 AN INVESTIGATION INTO THE EFFECTS OF A POSITIVE LABEL ON THE FAMILIES OF GIFTED CHILDREN

Investigator(s): Eleanore Fisher, Doctoral Candidate and Director, Pupil Personnel Services, Briarcliff Public Schools, Briarcliff Manor, New York 10510.

Purpose: To learn whether families change attitudes, expectations, or behaviors as a result of positive labeling.

Subjects: 12 families of first graders who have been identified as gifted by the school and placed in a special program.
Methods: Data were gathered through tape recorded interviews, partial home environment observations, classroom observation, and case study write ups. A content analysis of the data was made.
Findings: Positive labeling affects child, parents, and siblings. Gifted children present certain childrearing problems.
Duration: September 1976-September 1977.

39-IA-5 ANNUAL TALENT SEARCH

Investigator(s): Julian C. Stanley, Ed.D., Professor, Department of Psychology and Director, Study of Mathematically Precocious Youth, Johns Hopkins University, Baltimore, Maryland 21218.
Purpose: To identify and describe highly able and talented mathematical reasoners in an effort to develop appropriate educational strategies.
Subjects: 507 male and 366 female 7th graders or underage 8th graders attending public, private, or church affiliated schools, 12 percent of whom live outside the State of Maryland.
Methods: To qualify for the talent search, students had to score in the top three percent of their national age-grade group in mathematical ability. Those persons in the search took both the verbal and mathematical reasoning parts of the Scholastic Aptitude Test, a test designed chiefly for above average 11th and 12th graders. The top 278 scorers on a 2M + 1V score were invited back for further testing. The cognitive measures included the ACT-Mathematics, ACT-Natural Science, Differential Aptitude Test (DAT)-Space Relations, DAT-Abstract Reasoning, and the Cooperative Mathematics Series Algebra I Test. The SMPY staff is willing to work with any school system interested in identifying mathematically talented youths and creating programs for them. SMPY offers a number of suggestions and opportunities to students and their schools. Among these alternatives are subject matter acceleration, grade-skipping, fast-math classes, tutor-preceptor techniques, diagnostic testing, Advanced Placement Program courses, college courses while still in high school, and early entrance to college.
Findings: Over 50 percent of the participants scored above the average high school senior on at least one subtest of the SAT (mathematics or verbal).
Duration: October 1976-September 1979.
Cooperating group(s): Educational Foundation of America.
Publications: (1) Keating, D. P. (Ed.) *Intellectual talent: Research and development.* Baltimore, Maryland: Johns Hopkins University Press. (2) Stanley, J. C.; Keating, D. P.; and Fox, L. H. *Mathematical talent: Discovery, description, and development.* Baltimore, Maryland: Johns Hopkins University Press.

39-IA-6 EDUCATORS' ATTITUDES TOWARD IQ AND GIFTED CHILDREN

Investigator(s): Kenneth R. Seeley, Ed.D., Coordinator of Special Education, University of Denver, Denver, Colorado 80208.
Purpose: To examine the attitudes of classroom teachers toward intelligence quotients in the identification of gifted children.
Subjects: 75 women and 25 men teachers, ages 22 to 60, who teach in elementary and secondary schools in Colorado.

Methods: Subjects responded to a survey instrument of 10 statements on a 5-point Likert scale. Data analysis consisted of a frequency distribution of agreement on the statements made. The statements were concerned with validity of IQ measures, cultural bias problems, group vs. individual IQ, and the relationship of IQ to creativity.
Findings: Most teachers agreed that the IQ test is a valid measure of academically gifted children, but that it should not be the primary criterion for placement into special programs. Most agreed that test bias should be eliminated by using creative measures rather than IQ.
Duration: March 1977-June 1977.
Cooperating group(s): Colorado Association for Gifted and Talented.

Emotionally Disturbed and Mentally Ill

39-JA-1 CHILD BEHAVIOR PROFILE

Investigator(s): Thomas M. Achenbach, Ph.D., Research Psychologist; and Craig Edelbrock, Ph.D., Staff Fellow, Laboratory of Developmental Psychology, National Institute of Mental Health, Building 15K, 9000 Rockville Pike, Bethesda, Maryland 20014.
Purpose: To provide a standardized descriptive instrument for the behavioral competencies and problems of children, ages 4 through 16.
Subjects: 2,200 disturbed and 1,400 normal children, ages 4 to 16, both sexes.
Methods: Parents of normal and disturbed children fill out the Child Behavior Checklist to describe, in standardized format, the interests, competencies, and behavior problems of their children. From these data, separate Behavior Profiles are constructed for children of each sex at ages 4 to 5, 6 to 11, and 12 to 16. The profiles consist of *a priori* competence scales (activities, social, school) and behavior problem scales derived through factor analysis of the problems reported for disturbed children of each sex within each of the age groups. Scoring norms are based on nonclinical samples. Follow-up studies of clinic children differing in profile patterns are being done.
Findings: The profile for boys, ages 6 to 11, has been completed and is available in hand-scored and computer-scored versions. Profiles for boys, ages 12 to 16; and girls, ages 6 to 11, are expected to be completed by early 1978.
Duration: 1975-1978.
Cooperating group(s): 30 mental health agencies.

39-JC-1 VESTIBULAR-ROTATIONAL STIMULATION IN THE TREATMENT OF HYPERACTIVE CHILDREN

Investigator(s): David L. Clark, Ph.D., Associate Professor, Department of Anatomy; V. Bhatara, M.D., Assistant Professor, Department of Psychiatry; and L. E. Arnold, M.D., Assistant Professor, Department of Psychiatry, Ohio State University, Columbus, Ohio 43210.
Purpose: To determine the effects of semicircular canal stimulation on hyperkinetic behavior.
Subjects: One boy, age 5, diagnosed as hyperkinetic.
Methods: The subject was evaluated using several behavioral tests and a semicircular canal function test. He was exposed to 16 sessions of vestibular stimulation over a 4-week period. The same behavioral and semicircular canal tests were administered as a posttest.

104

Findings: A marked reduction in hyperkinetic behavior was observed, as measured by the behavioral tests, and also via interviews with the mother. Semicircular canal testing revealed a normal end organ, as reflected in the cupular time constant and a normal slow phase nystagmus component as measured by the adaptation time constant. Intersaccadic interval was significantly longer than that observed in one normal 5-year-old girl. No change in intersaccadic interval was seen as a function of the sessions of semicircular canal stimulation. The study is now being repeated with a larger sample.
Duration: January 1976-December 1977.
Cooperating group(s): Ohio Division of Mental Health.

39-JC-2 ASSESSMENT OF CHILDREN'S ENVIRONMENTS

Investigator(s): Jacob O. Sines, Ph.D., Professor, Psychology Department, University of Iowa, Iowa City, Iowa 52242.
Purpose: To develop parent questionnaire scales to measure press-type dimensions of a child's environments; to determine the relation between those scales and children's observable behavior; and to assess environment X personality interactions in predicting behavior.
Subjects: 500 girls and boys, ages 5 to 15, who are seen at various clinics for behavior problems.
Methods: An item analysis is made of environment questionnaires completed by mothers. Environment scale scores are correlated with scores on a behavior checklist. The significance of both environment and personality scales in predicting behavior rating will be examined.
Findings: Eight environment scales have been developed that are internally consistent and relatively independent as well as moderately related to aggressiveness, activity level, inhibition, and sociability of children.
Duration: August 1975-August 1979.

39-JC-3 BEHAVIOR MODIFICATION BY LONG DISTANCE: DEMONSTRATION OF FUNCTIONAL CONTROL OVER DISRUPTIVE BEHAVIOR IN A RURAL CLASSROOM SETTING

Investigator(s): Philip H. Bornstein, Ph.D., Assistant Professor; Scott B. Hamilton, M.A., Graduate Student; and Randal P. Quevillon, M.A., Graduate Student, Department of Psychology, University of Montana, Missoula, Montana 59812.
Purpose: To demonstrate the applicability of behaviorally oriented consultation by long distance; and to illustrate the utility of a positive practice procedure to promote maintenance of behavioral improvement over an extended follow-up period.
Subjects: One 9-year-old male with normal intellectual abilities, who showed out-of-seat, noncompliance, aggressive, and disruptive classroom behaviors.
Methods: Prescribed teacher behaviors for dealing with the subject's problem behaviors were designed in consulting sessions. An A-B-A-B single subject reversal design was utilized in order to demonstrate functional control over the target behavior (e.g., out-of-seat). Data were collected on a daily basis by the teacher and a teacher aide. Methodological features included counter-expectancy reversal to baseline rationales and covert reliability checks.
Findings: There was a dramatic reduction in the frequency of target behavior occurrence. Behavioral improvements were maintained 6 months following the initiation of baseline.
Duration: September 1975-completed.

39-JE-1 VESTIBULAR-ROTATIONAL STIMULATION IN THE TREATMENT OF AUTISTIC CHILDREN

Investigator(s): David L. Clark, Ph.D., Associate Professor, Department of Anatomy, Ohio State University, 1645 Neil Avenue, Columbus, Ohio 43210; and H. Newman, Ph.D., President, Central Ohio Chapter of the National Society for Autistic Children.
Purpose: To determine the effects of semicircular canal stimulation on autistic behavior.
Subjects: Five male autistic children, ages 9 to 14.
Methods: Children were pretested for semicircular canal function and for degree of autistic behavior using the Behavior Rating Instrument for Autistic and Atypical Children. A cross-over design was used. Each child received 16 regularly spaced sessions of semicircular canal stimulation during a 4-week period. Evaluations of the dependent variables occurred two additional times. T-tests were used to compare results.
Findings: No change in autistic behavior was observed to occur as a function of the sessions of semicircular canal stimulation. Semicircular canal function appeared to be normal as measured by the cupular time constant. The adaptation time constant values were erratic, suggesting some differences in the ability to control the slow phase component of postrotatory nystagmus. Intersaccadic interval was significantly longer than in normal subjects of comparable age. A significant improvement in intersaccadic interval was observed as a function of the sessions of semicircular canal stimulation.
Duration: June 1976-June 1977.
Cooperating group(s): (1) Columbus Foundation. (2) Ohio State University, Nisonger Center. (3) Central Ohio Chapter of the National Society for Autistic Children.

39-JE-2 BLOOD SEROTONIN AND PLATELETS IN AUTISTIC CHILDREN

Investigator(s): Arthur Yuwiler, Ph.D., Chief; and E. Geller, Assistant Chief, Neurobiochemistry Research Laboratory, Veterans' Administration Hospital, Wilshire and Sawtelle Boulevards, Los Angeles, California 90073; and Edward R. Ritvo, Ph.D., Associate Professor, Department of Psychiatry, University of California, Los Angeles, California 90024.
Purpose: To determine why autistic children appear to have higher blood serotonin concentration platelet counts and serotonin/platelet than age matched normals or other hospitalized children.
Subjects: Children, ages 3 months to 11 years, both sexes, diagnosed as autistic by the criteria of Ornitz and Ritvo.
Methods: Currently, an attempt is being made to determine if the differences observed to date could reflect a difference in platelet population or distribution. A density gradient separation of platelet populations has been developed with which to analyze the 5HT and monoamine oxydase activities in these populations and the relationship between platelet volume and gradient density.
Findings: There is evidence that 5HT in some platelet populations (defined by density centrifugation) is twice that per platelet of other platelet populations.
Duration: 1973-continuing.

39-JE-3

SELF-RECOGNITION AND RESPONSE TO STIMULUS COMPLEXITY BY NORMAL INFANTS AND AUTISTIC CHILDREN

Investigator(s): Cynthia Flannery, M.A., Graduate Student; and Suzanne D. Hill, Ph.D., Professor, Department of Psychology, University of New Orleans, Lake Front, New Orleans, Louisiana 70122.
Purpose: To determine differences in self-recognition and response to stimulus complexity in normal and autistic children.
Subjects: Autistic children, ages 5 to 9; and normal infants, ages 1 to 2.
Methods: The children viewed videotapes of themselves. In the first session, the children's faces were marked unknown to them to serve as an objective test of self-recognition. If they did not indicate self-recognition, they were exposed to a live videotape of themselves for five sessions followed by a second marked session. Two videomonitors were available in two other sessions so that the children could choose to view themselves as they were taped or to view a pretaped film of themselves.
Findings: All except one of the autistic children showed self-recognition. The normal infants showed self-recognition by 14 months. The autistic children preferred the more predictable, live self-image to the pretaped version of themselves; whereas, the normal infants preferred the more complex (pretaped) version of their images.
Duration: September 1975-completed.

39-JE-4

DEMOGRAPHIC PROFILE OF 105 AUTISTIC CHILDREN

Investigator(s): Magda Campbell, M.D., Associate Professor, Director, Children's Psychopharmacology Unit, Medical Center, New York University, 550 First Avenue, New York, New York 10016.
Purpose: To construct a descriptive profile and delineate subgroups of autistic children.
Subjects: 105 autistic children, ages 18 months to 7 years; and 46 nonautistic siblings, ages 7 months to 16 years, who served as controls.
Methods: Information on each subject included the Children's Personal Data Inventory (developed by the Psychopharmacology Branch of the National Institute of Mental Health) and 153 additional items (developed by the Children's Psychopharmacology Unit) concerning detailed pre- and perinatal history and family history of mental illness.
Findings: The mean age of subjects was 3.95 years with a standard deviation of 12.21 months. The mean age of siblings was 6.33 years with a standard deviation of 47.9 months. Eighteen percent of the subjects were the only child, 26 percent were firstborn, 19.8 percent were middle born, and 35.3 percent were last born. Mothers' mean age was 30.95 years. Fifty-four percent of the subjects had a family history of nonpsychotic psychiatric disturbances, and 32.4 percent had a history of schizophrenia. Seventy-one percent of the subjects had complications of pregnancy and/or neonatal course, and only 49 percent of the siblings had the same. Bleeding in the first 6 months of pregnancy was a most significant finding in the autistic group: 13.2 percent in the autistic males, 12.5 percent in the autistic females, and only 4.8 percent in male nonautistic siblings. Seventy percent of the autistic subjects and 20 percent of the nonautistic siblings were ambidextrous.
Duration: April 1976-completed.
Cooperating group(s): Psychopharmacology Branch; National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U.S. Department of Health, Education, and Welfare.

39-JE-5 PRE-, PERI-, AND NEONATAL FACTORS AND EARLY INFANTILE AUTISM

Investigator(s): Jo-Anne K. Finegan, M.A., Graduate Student, Department of Psychology, York University, Downsview, Ontario, Canada.
Purpose: To investigate the obstetrical histories of autistic children.
Subjects: 21 male and 6 female autistic children, who were diagnosed as having early infantile autism and who met several descriptive criteria; and 16 nonautistic sibling control subjects. Onset of autism in autistic subjects was prior to 30 months of age.
Methods: The obstetrical events of the 27 autistic subjects were compared to the rate of events in the general population. Obstetrical events of 16 autistic subjects were compared to the rate of events in 16 sibling controls. The rate of events for the 16 controls was also compared with the general population data. Mothers' reports of obstetrical events were excluded from the analysis. General population data were derived from the Ontario Perinatal Mortality Study and from the Collaborative Perinatal Study of the National Institute of Neurological Diseases and Stroke.
Findings: The comparison of the rate of events between the 27 autistic subjects and the general population yielded a significantly high rate of breech births, use of forceps to head in breech births, low birthweight, high birthweight, primary apnea, low Apgar scores, haemolytic disease, elevated serum bilirubin, and Respiratory Distress Syndrome in the autistic subjects.
Duration: 1975-completed.
Publications: Information is available from the investigator.

39-JE-6 IDIOT SAVANT CAPABILITIES OF AUTISTIC-TYPE CHILDREN

Investigator(s): Bernard Rimland, Ph.D., Director, Institute for Child Behavior Research, 4758 Edgeware Road, San Diego, California 92116.
Purpose: To study the nature and extent of special mental abilities in autistic-type children.
Subjects: 291 autistic children who were reported to have idiot savant characteristics.
Methods: Case histories were selected from the files of the Institute for Child Behavior Research, which contain approximately 5,400 case histories of autistic or autistic-type children from around the world. The files were searched for children who were reported to have idiot savant characteristics, and approximately 560 (10 percent) such children were identified. Questionnaires were sent to the parents of 291 of these children asking the age at which the savant characteristics began, the peak age, any stimulus that may have first aroused the child's interest, and any history of the same abilities in the family's history.
Findings: Based on 119 cases for which information is available, the boy/girl ratio of three to one is approximately the same as that for the total population of autistic children. The abilities most commonly reported are: music, memory, mathematics, and calendar calculation. These appear to be largely right hemisphere functions.
Duration: January 1977-September 1977.
Publications: A paper will be published in *Proceedings of the 1977 Kittay Scientific Foundation Conference on Cognition and Mental Defect* (to be published by Plenum Press, 1978).

39-JE-7 A SYSTEMATIC STUDY OF THE GENERALIZATION EFFECTS OF AMERICAN SIGN LANGUAGE (ASL) TRAINING WITH LOW-VERBAL (AUTISTIC) CHILDREN

Investigator(s): Frederica Conrad, Ph.D., Assistant Professor of Medical Psychology in Residence; Danita Sorenson, M.A., Speech Pathologist; and Delmont C. Morrison, Ph.D., Professor of Medical Psychology, Langley Porter Neuropsychiatric Institute, Medical Center, University of California, 401 Parnassus Avenue, San Francisco, California 94143.
Purpose: To evaluate the generalizability (1) of operantly trained expressive ASL to novel referents, and (2) of expressive to receptive gestural language in autistic children.
Subjects: Two children, ages 8 and 10, with very low verbal receptive and expressive skills, who are emotionally disturbed as measured by Ruttenberg *et al.* (1966).
Methods: Subjects were given ASL training without the simultaneous communication technique in an attempt to control for modeling and training in verbal receptive skills. They were then tested for ASL generalization and verbal receptive and expressive generalization. Pre- and posttest measures included the Peabody Picture Vocabulary Test, Stanford-Binet Picture Vocabulary Subtest, and Response to Moods and Emotions Pictures (Teoter, 1970).
Findings: Both subjects acquired signs. Within-category and numbers generalization was observed, although there was no generalization to improved receptive and expressive verbal skills. Without verbal input, there was no expressive to receptive use of sign language. No creative use of ASL was found.
Duration: April 1977-continuing.
Publications: A paper presented at the Western Psychological Association Meeting, 1977.

39-JE-8 A CRITICAL EVALUATION OF SIX DIAGNOSTIC SCALES OF CHILDHOOD PSYCHOSIS

Investigator(s): Joseph B. Greene, M.D., Assistant Professor in Residence and Acting Director, Inpatient Department; and Delmont C. Morrison, Ph.D., Associate Psychologist, Child and Adolescent Service, Langley Porter Neuropsychiatric Institute, Medical Center, University of California, 401 Parnassus Avenue, San Francisco, California 94143.
Purpose: To establish a reliable and valid scale of childhood psychosis through critical evaluation of previously established diagnostic scales of childhood psychosis.
Methods: Using the same criteria that is used to evaluate psychological measurement, the research of Rimland, DeMeyer, *et al.*, Ruttenberg, Lotter, the British Working Party Scale, and Polan and Spencer was evaluated. Reliability was defined and acceptable statistical procedures for its establishment were discussed. Predictive, content, and construct validity were defined with examples given to apply each concept to measures of childhood psychosis.
Findings: The establishment of construct validity is most important and has been attempted mainly by Rimland and DeMeyer *et al.* In both cases correlations between the scales and significant independent measures have been low. Cross-validation and the replication of the results of early studies are almost non-existent. The developers of these scales have used a diagnostic category approach in developing the scale. An alternative approach, using a developmental deviation approach, is proposed.
Duration: September 1976-June 1977.

39-JG-1 FAMILY CHANGE PROJECT

Investigator(s): Steven Friedman, Ph.D., Associate Professor/Research Scientist, Box 512; and Bennett I. Tittler, Ph.D., Assistant Professor, Box 158, John F. Kennedy Center, George Peabody College for Teachers, Nashville, Tennessee 37203.

Purpose: To develop a system of measurement therapeutically sensitive to change in individual families; to assess change following an ecological intervention program directed at families having a child identified as emotionally disturbed; and to obtain information on the relationship of family change and change in the identified child.

Subjects: 20 multiproblem families varying in number of parents, number of siblings, sex of identified child, and socioeconomic background. All families have a child enrolled in Cumberland House School, a residential treatment center for children identified as emotionally disturbed.

Methods: Multiple indices of family interaction (self-report, projective technique, and observational) are obtained at the time of the child's enrollment in the residential program and at the termination of the program (6 to 8 months following enrollment). In addition, some families are also observed at a point in the middle of the child's enrollment. A tailoring procedure is used to formulate predictions regarding change in individual families. A family's specific set of predictions are derived from a clinical assessment of areas of discordance in the family's interaction. Several criterion measures (e.g., achievement test scores, therapist rating of family improvement) will be related to changes on the experimental measures. Family interaction sessions are videotaped and coded for various *process* (e.g., talking time, interruptions) and *content* (e.g., acknowledgement) variables.

Duration: September 1974-continuing.

Cooperating group(s): (1) National Institute of Health Biomedical Sciences Support Division; National Institute of Child Health and Human Development; National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare. (2) State of Tennessee, Department of Mental Health (ESEA Title I).

Publications: (1) Tittler, B. I.; Friedman, S.; and Klopper, E. A system for tailoring change measures to the individual family. *Family Process* (in press). (2) Burns, K. and Friedman, S. In support of families under stress: A community based approach. *Family Coordinator,* 1976, 26, 41-46. (3) Friedman, S.; Rogers, P. P.; and Gettys, J. Project Re-Ed: Increase in self-esteem as measured by the Coopersmith Inventory. *Perceptual and Motor Skills,* 1975, 40, 165-166.

39-JH-1 AN OUTCOME STUDY OF THE DAY TREATMENT UNIT IN A PRIVATE PSYCHIATRIC FACILITY

Investigator(s): Hjordis G. Ohberg, Ph.D., Psychologist; Linda M. Day, M.S., Psychologist and Doctoral Intern; John C. Collins, M.S., Caseworker; Iran Fahmy, M.S., School Consultant; and Barbara Welliver, M.S.W., Social Worker, Children's Service Center, Luzerne-Wyoming County Mental Health Center #1, 103 South Main Street, Wilkes-Barre, Pennsylvania 18701.

Purpose: To investigate longitudinally symptom removal among identifiable groups of children attending a day treatment unit over a 10-year period.

Subjects: Phase I: 20 male and 10 female students, ages 3 to 18, randomly selected from a population of 189 children who attend day treatment for 1 month or more during 1968-1974. Average age, 9.3; average IQ, 93; average length of stay, 11 months. Phase II: Study is in progress.

Methods: The study is being conducted in two phases: Phase I, a retrospective study of 1968-1974 with pilot follow-up; Phase II, an experimental study. Phase I was an initial exploratory study of the Day Treatment Unit of the Children's Service Center of Wyoming Valley. Data from past records included age, IQ, birth order, number of developmental difficulties and presenting problems, time between application and admission, length of stay, and number on medication. Certain family variables were also included. Correlational analyses were made to determine the relationships of these characteristics under each of the following conditions: sex, application status, medication status, discharge status, and family status. The pilot study included a follow-up of 10 of the 30 subjects who were included in a single urban school district. School counselors completed Quay-Peterson Behavior Checklists which were compared with the same checklist prepared by the child's parents during a personal interview with a research assistant. The child was interviewed by the same assistant, who solicited the child's view as to the helpfulness of the day treatment experience.

Findings: The study was limited by the size of the sample. Variables which surfaced consistently are those of age at admission, number of developmental difficulties, family size, and length of stay. Time between application and admission and numbers of presenting problems also appear to be important variables. The pilot follow-up study was instructive in indicating direction for Phase II and in pointing up the importance of data collection from parent, teacher, and child. However, because of the size of the sample and missing data, results were inconclusive.

Duration: 1974-1981.

Cooperating group(s): Wilkes-Barre Schools, Special Education Director and Guidance Staff.

Publications: A mimeographed report is available from the investigators.

39-JH-2 A COMPARISON OF HALOPERIDOL AND BEHAVIOR THERAPY AND THE INTERACTION OF BOTH IN SCHIZOPHRENIC CHILDREN

Investigator(s): Magda Campbell, M.D., Associate Professor of Psychiatry and Director; and Lowell T. Anderson, Ph.D., Assistant Professor of Psychiatry, Children's Psychopharmacology Unit, Medical Center, New York University, 550 First Avenue, New York, New York 10016.

Purpose: To establish whether haloperidol, placebo, behavior therapy, or a combination of drug and behavior therapy is more effective in the treatment of autistic children.

Subjects: 40 preschool-age autistic boys and girls.

Methods: Experimental and control groups were rated in a double blind study. Multiple independent raters and multiple scales were used. Performance measures included Children's Personal Data Inventory, Children's Symptom History, Children's Psychiatric Rating Scale, Clinical Global Impressions, Dosage Record and Treatment Emergent Symptoms, Children's Diagnostic Scale, Children's Diagnostic Classification, Patient Termination Record, Children's Behavior Inventory, and Conners Parent Teacher Questionnaire. Data were analyzed by the George Washington University Biometric Laboratory.

Duration: September 1975-June 1977.

Cooperating group(s): (1) Psychopharmacology Branch; National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare. (2) New York State Psychiatric Institute.

39-JH-3 A CONTROLLED STUDY OF LITHIUM CARBONATE, CHLORPROMAZINE, AND HALOPERIDOL IN SEVERELY DISTURBED CHILDREN, AGES 6 TO 12

Investigator(s): Magda Campbell, M.D., Associate Professor of Psychiatry and Director; and Baron Shopsin, M.D., Associate Professor of Psychiatry, Children's Psychopharmacology Unit, Medical Center, New York University, 550 First Avenue, New York, New York 10016.
Purpose: To establish which of three drugs (lithium carbonate, chlorpromazine, or haloperidol) is most effective in reducing aggressiveness, hyperactivity, and explosiveness.
Subjects: 30 boys and girls, ages 6 to 12, with a behavior profile of aggressiveness, hyperactivity, and explosive affect, irrespective of diagnosis and intellectual functioning.
Methods: Experimental and control groups were rated in a double blind study. Multiple independent raters and multiple scales were used. Performance measures included Children's Personal Data Inventory, Children's Symptom History, Children's Psychiatric Rating Scale, Clinical Global Impressions, Dosage Record and Treatment Emergent Symptoms, Children's Diagnostic Scale, Children's Diagnostic Classification, Patient Termination Record, Children's Behavior Inventory, and Conners Parent-Teacher Questionnaire. Data were analyzed by the George Washington University Biometric Laboratory.
Duration: September 1976-December 1977.
Cooperating group(s): Psychopharmacology Branch; National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare.
Publications: *Archives of General Psychiatry; American Journal of Psychiatry.*

39-JH-4 A STUDY OF DRUG EFFECTS WITH AUTISTIC CHILDREN

Investigator(s): Suzanne D. Hill, Ph.D., Psychological Consultant; and Barbara Brothers, M.D., Child Development Center, Southeast Louisiana Hospital, Mandeville, Louisiana 70448.
Purpose: To determine the effect of a drug regime as treatment for autistic children.
Subjects: Three autistic children, ages 7 to 12.
Methods: Children are observed in the classroom during training on verbal and nonverbal tasks. One nonverbal and one verbal task are well-practiced ones; the other of each set is relatively new. Behavioral and learning responses are observed.
Findings: Data for two children indicate that neither showed differences in learning as a function of drugs. Verbal and nonverbal behaviors improved differentially with drugs.
Duration: October 1975-continuing.

39-JH-5 THE EFFECTS OF METHYLPHENIDATE ON LEARNING

Investigator(s): Herbert E. Rie, Ph.D., Professor, Department of Psychology and Pediatrics, Ohio State University, Columbus, Ohio 43205.
Purpose: To gather evidence regarding the long-term effects on achievement of stimulant medication, particularly ritalin.
Subjects: 140 elementary school children (3 to 1 boy-to-girl ratio), who were referred for learning and behavioral disabilities.

Methods: A double blind, cross-over design was used with a placebo in lieu of medication in the control group. A behavior rating scale, a positive responsivity scale, and an experimental laboratory design measuring effects of short- and long-term learning were developed. Data were analyzed using factor analysis, analysis of variance, covariance, and multiple regression equations treatments.
Findings: Stimulant medication decreases maladaptive behaviors, increases school productivity, increases reading skill in the short run, has no effect on long-term achievement, reduces positive affect arousal, and renders the child less sociable but more tolerable socially.
Duration: October 1972-completed.
Cooperating group(s): (1) Ohio Department of Mental Health and Retardation. (2) Upper Arlington Schools.
Publications: (1) Rie, H. E.; Rie, E. D.; and Stewart, S. Effects of methylphenidate on underachieving children. *Journal of Consulting and Clinical Psychology,* 1976, 44(2), 250-260. (2) Rie, H. E.; Rie, E. D.; Stewart, S.; and Ambuel, J. P. Effects of ritalin on underachieving children: A replication. *American Journal of Orthopsychiatry,* April 1976, 46(2).

39-JH-6 ATTENTIONAL BEHAVIOR AND DRUGS IN HYPERACTIVE CHILDREN

Investigator(s): Richard J. Schain, M.D., Professor, Department of Pediatrics, Division of Pediatric Neurology, School of Medicine, University of California, Los Angeles, California 90024.
Purpose: To delineate aspects of attentional problems of hyperactive children; and to investigate the clinical utility of tests of attentional behavior in assessing the response of hyperactive children to a central stimulant drug.
Subjects: 48 children, ages 7 to 10, referred for problems relating to hyperactivity. Children with overt neurological handicaps, mental retardation, blindness, or deafness were excluded.
Methods: Aspects of the study included prediction, from attentional measures, of drug response and the feasibility of monitoring dosage with attentional measures. Methylphenidate was started as a single morning dose of approximately 0.2 mg/kg. At the end of 2 weeks, a Global Improvement Scale and Conners Abbreviated Rating Scale was completed by parents and teachers. Dosage was increased as clinically indicated. Every 2 weeks, ratings are obtained and dosage further increased as necessary. Dosage levels of 0.2, 0.4, 0.6, and 0.8 mg/kg have been utilized. The attention tests include the Children's Checking Task (CCT), Matching Familiar Figures Test (MFFT), Porteus Maze Test, and Children's Embedded Figures Test.
Findings: While performance on the attention tests improved with drug treatment, the CCT and MFFT seem to be exceptionally sensitive and thus particularly appropriate for evaluating the effect of methylphenidate treatment on hyperactive children. The data are based on limited analysis of a smaller number of children.
Duration: September 1976-continuing.
Cooperating group(s): U. S. Department of Health, Education, and Welfare.
Publications: Schain, R. J. and Reynard, C. L. Observations on effects of a central stimulant drug (methylphenidate) in children with hyperactive behavior. *Pediatrics,* 1975, 55, 709-716.

Juvenile Delinquency

39-KD-1 THE KVARACEUS DELINQUENCY (KD) PRONENESS SCALE AS AN INDEX OF DELINQUENCY WITHIN A DELINQUENT POPULATION

Investigator(s): Robert Heintzelman, Director, Education and Research; and Leo Herrman, Psychologist, Youth Center at Topeka, 1440 N.W. Highway K-172, Topeka, Kansas 66608.

Purpose: To compare scores on the KD Scale to measures of delinquency used at the Youth Center at Topeka.

Subjects: 165 males, ages 13.5 to 18 (70.3 percent white, 23.6 percent black, 6.1 percent American Indian), all adjudicated delinquent by a juvenile court.

Methods: Since the KD Scale has not been shown to serve well as a predictor of delinquency, it was felt that it might be a sensitive index of delinquent attitudes within a delinquent population. The Scale was administered to the entire population of the Youth Center at Topeka. Analysis of variance was used to determine whether KD scores varied significantly when compared in the same manner as youth center criteria, type of cottage, and level of achievement. A follow-up was done with 30 subjects to see if scores changed drastically from first entering to just prior to leaving the center.

Findings: Type of cottage was significantly related to the KD scores, but level of achievement was not. Pre- and posttests indicated significant test score change during time spent at the center.

Duration: May 1976-May 1977.

Publications: Information is available from the investigators.

39-KD-2 DRUG AND ALCOHOL ACTIVATED ELECTROENCEPHALOGRAPHIC STUDIES IN CRIMINOLOGICAL BEHAVIOR

Investigator(s): George N. Thompson, M.D., Associate Clinical Professor, University of California, 2010 Wilshire Boulevard, Suite 607, Los Angeles, California 90057.

Purpose: To correlate abnormal behavior with electroencephalographic abnormalities activated by drugs and alcohol.

Subjects: 50 juveniles, ages 10 to 18, from private practice and court referral cases; and a similar group of juveniles as controls.

Methods: The research consists of electroencephalographic studies of individuals charged with various crimes.

Findings: Data indicate a significant correlation between EEG and disturbed behavior.

Duration: April 1976-April 1978.

39-KH-1 DRUG REPORTING PROGRAM

Investigator(s): S. B. Sells, Ph.D., Research Professor and Director; and D. Dwayne Simpson, Ph.D., Associate Professor, Institute of Behavioral Research, Texas Christian University, Fort Worth, Texas 76129.

Purpose: To study the outcome effectiveness of drug abuse treatment for the youth subsample of the National Institute on Drug Abuse study.

Subjects: 5,405 patients from the Drug Abuse Reporting Program (DARP) master research file, age 19 or younger, black or white, who were receiving treatment from one of 52 agencies for drug addiction.

Methods: Data included age at admission, sex, race, employment, productive activities, illegal support, arrests, pretreatment drug use, and type of treatment (outpatient methadone maintenance, therapeutic community, outpatient drug free, detoxification). Comparisons were made of type of treatment, drug use, and follow-up data by age, sex, and race.

Findings: See Publications below.

Duration: 1976-completed.

Publications: Sells, S. B. and Simpson, D. D. *Evaluation of treatment for youth in the Drug Abuse Reporting Program* (*DARP*). Fort Worth, Texas: Institute of Behavioral Research, Report No. 77-9, April 1977 (Prepared for the Youth Polydrug Demonstration Project, Polydrug Research Center, Bala-Cynwyd, Pennsylvania).

39-KJ-1 DELINQUENCY PATTERNS IN MALTREATED CHILDREN AND SIBLINGS

Investigator(s): John W. Reich, Ph.D., Associate Professor, Department of Psychology, Arizona State University, Tempe, Arizona 85281; and F. G. Bolton, Jr., Ph.D., Director, Human Resource Services; and Sara E. Gutierres, Comprehensive Emergency Services Coordinator, Arizona Community Development for Abuse and Neglect, 1400 West Washington, Phoenix, Arizona 85007.

Purpose: To analyze the relationship between dysfunctional family rearing practices and a juvenile's subsequent patterns of entry into the juvenile justice system.

Subjects: 774 girls and boys identified by juvenile court records as juvenile offenders, who were also referred to the Arizona State Department of Economic Security for child abuse. A control sample of 900 reported juvenile offenders were randomly selected from the Maricopa County Juvenile Court Center records.

Methods: From a modeling perspective it was hypothesized that siblings of abused children would be more likely to commit aggressive crimes, while the abused children themselves would be more likely to commit escapist offenses. In the experimental sample, the child reported for abuse was the name of interest and brothers and sisters were siblings. In the control sample, the first name to appear in the records was the name of interest and brothers and sisters appearing in the records were siblings. Basic data of the study were reported crimes. Crimes were categorized into 57 types. Three crime types were categorized "escape," and eight were categorized "aggressive." Frequency of each crime by each subject was tallied and resulting frequencies for each of the four conditions represented basic units of analysis. The conditions included abused-experimental, sibling-experimental, primary-control, sibling-control. Data were analyzed by a three-way chi-square following the Sutcliffe procedure for higher order analyses. Factors were experimental vs. control, abused/primary vs. sibling, and escape vs. aggressive crimes. Unit of analysis was type of crime. Because of nonindependence of the data (some subjects were reported for more than one crime), a second analysis was performed counting one crime for each subject, with the individual as the basic unit of analysis. Resulting proportions were nearly identical to those of the initial analysis.

Findings: Abused children tended to have a very low frequency of aggressive crimes (7.8 percent) compared with their siblings (17.2 percent). Abused children were reported for escape crimes (92.2 percent) at a higher rate than their siblings (82.2 percent), and at a higher rate than both groups of control subjects (76.5 percent, primary; 69.4 percent, siblings).

Duration: November 1976-completed.

39-KK-1 DELINQUENCY PREVENTION THROUGH FOSTER PARENT TRAINING

Investigator(s): John Burchard, Ph.D., Professor; and Harold Leitenberg, Ph.D., Professor, Department of Psychology, University of Vermont, Burlington, Vermont 05401.

Purpose: To provide behavioral and communication skills training for foster parents of unmanageable and predelinquent children; and to determine whether selected trained foster parents can in turn train other foster parents.

Subjects: 81 foster parents over the last 3 years, approximately equal numbers of males and females.

Methods: Pre- and posttest measures are administered to foster parent trainees and control foster parents participating in the 16-week training program. A comparison is also being made of people trained by professional staff and people trained by selected foster parent graduates of the program.

Duration: 1974-1979.

Cooperating group(s): (1) Crime and Delinquency Branch; National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare. (2) Vermont Department of Social Rehabilitation Services.

Publications: A paper presented at the American Psychological Association, Washington, D.C., 1976: Children's adjustment in foster homes compared to alternative placements.

Corrections

39-KR-1 FACTORS EFFECTING ADJUSTMENT TO PROGRAM AND RECIDIVISM IN A COMMUNITY DAY TREATMENT PROGRAM

Investigator(s): Martin Kohn, Ph.D., Director of Research; and Martin Koretzky, Ph.D., Research Psychologist, Jewish Board of Guardians, 120 West 57th Street, New York, New York 10019.

Purpose: To evaluate the effectiveness of day treatment on seriously delinquent male and female juvenile offenders; and to determine factors that influence this process.

Subjects: To date, 51 seriously delinquent adolescents who were admitted to one of two day treatment facilities of the Jewish Board of Guardians, the Phoenix School for Boys, or the Montague School for Girls.

Methods: The study is part of a continuing evaluation. Various procedures are being pilot tested to assess the youths at major points in the program: at intake, during the program, at discharge, and at a follow-up. The range of data collected covers demographic variables, court involvement, academic functioning, adjustment to the program, benefits (if any) derived from the program, and postdischarge functioning.

Findings: Preliminary findings are available on the Phoenix School for Boys. Pre-Phoenix School variables predictive of better program adjustment included higher IQ and achievement level and families that were not intact. In-program adjustment was better for youths with more interest and supervision in their home situation. Youths with higher sociometric status, better attendance, and higher overall adjustment ratings were seen by staff as better adjusted and likely to do better in the future. Lower recidivism after Phoenix School was most highly associated with high sociometric status and good attendance while in the program.

Duration: September 1975-continuing.
Cooperating group(s): New York Family Court.
Publications: (1) Kohn, Martin and Koretzky, Martin. Factors effecting adjustment to program and recidivism in a community day treatment program (in preparation). (2) Kohn, Martin; Henrichsen, B.; and Galligan, C. The Phoenix School of the Jewish Board of Guardians: A community day treatment facility. Mimeo, 1975. (3) Kohn, Martin. The Phoenix School of the Jewish Board of Guardians: Population characteristics, program utilization and program effectiveness. December 1974.

39-KR-2 AN EVALUATION OF TREATMENT STRATEGIES AT THE ILLINOIS YOUTH CENTER-GENEVA

Investigator(s): Theodore N. Ferdinand, Ph.D., Professor, Department of Sociology, Northern Illinois University, DeKalb, Illinois 60115.
Purpose: To assess the impact of the Illinois Youth Center-Geneva on the girls sent there; and to determine whether the impact of the institution on the girls relates to their adjustment to the community when paroled.
Subjects: 234 girls, ages 13 to 18, who were received at the Illinois Youth Center-Geneva between March 1972 and October 1974.
Methods: Questionnaires were administered to both the staff and the residents at regular intervals. Change in the attitudes of residents was assessed and related to relationships with the staff. Evaluations of each girl were completed every 3 months after parole by her parole agent. Data were analyzed using factor analysis and canonical analysis.
Findings: The personality patterns exhibited by the girls at the Illinois Youth Center-Geneva closely parallel those found by Warren in California.
Duration: March 1972-September 1977.
Cooperating group(s): (1) Illinois Department of Corrections. (2) Illinois Law Enforcement Commission.
Publications: Information is available from the investigator.

39-KS-1 TREATMENT ASPECTS OF FAMILIES WITH SCHIZOPHRENIGETIC CHILDREN

Investigator(s): Hans A. Illing, Ph.D., Staff Member, Parole Outpatient Clinic, Department of Corrections, State of California, 107 South Broadway, Room 3144, Los Angeles, California 90012.
Purpose: To compare treatment results of families with children of mixed psychopathology to families with schizophrenogenic children.
Subjects: 14 patients, ages 19 to 45, of both sexes.
Methods: Selective summaries were made of individual and group psychotherapy for both groups and a control group. Notes taken during or after group sessions and at individual meetings were compared. All children were tested, and schizophrenogenic children were interviewed.
Duration: February 1977-January 1978.

THE CHILD IN THE FAMILY

Family Relations

39-LA-1 INTERACTION PATTERNS OF PARENT-CHILD DYADS IN PLAY SITUATIONS

Investigator(s): James F. Alexander, Ph.D., Associate Professor; and Ruth L. Ault, Ph.D., Assistant Professor, Department of Psychology, University of Utah, Salt Lake City, Utah 84112.
Purpose: To investigate patterns of parent-child interactions in terms of how each person's behavior functions to maintain, change, or terminate an interaction sequence.
Subjects: Nine girls and 10 boys of preschool age, each with one parent recruited from a university psychology course.
Methods: Each dyad was taken into a room with two chairs, a number of attractive toys on a shelf, and three moderately unattractive toys on a table. Parents were instructed to help their child select one of the three toys from the table and play only with it for the (unspecified) duration of the session. Each entire session was videotaped. The three foci of attention were identified as toy selected, other toys, and other objects/people in the room. Behavior was coded in terms of maintaining or changing the dyad's mutual focus. Sex of parent, sex of child, and toy chosen were covariates in the analysis.
Duration: February 1976-December 1977.
Cooperating group(s): Biomedical Sciences Support Grant, University of Utah.

39-LA-2 THE EFFECTIVENESS OF BRIEF THERAPY WITH FAMILIES

Investigator(s): Patricia A. Thompson-Heisser, Ph.D., Senior Staff Psychologist; and Karen Sabovich, M.A., Research Assistant, Thalians Community Mental Health Center, Cedars-Sinai Medical Center, 8730 Alden Drive, Los Angeles, California 90048.
Purpose: To develop an effective way of evaluating a new brief treatment and diagnostic program within a clinic; and to examine parents' perception of change.
Subjects: 35 families randomly selected, who were seen in treatment at the clinic. (Last date of contact, March 1976.) Mothers were interviewed by telephone.
Methods: Multiple regression analysis was done on a 53-item questionnaire that focused on client satisfaction and change in identified patient and family members individually. In addition, an analysis was done on a 5-item Interviewee Rating Scale developed by Zanwil Sperber, Ph.D. A total of 2,070 analyses were done.
Findings: Although the presenting problem with the identified patient remained the same, parents reported improvement in coping with familial problems. Most parents reported change in other family members.
Duration: October 1974-continuing.
Publications: A technical report is available from the investigator.

118

39-LA-3 A DEVELOPMENTAL INVESTIGATION OF THE CHILD'S UNDERSTANDING OF SOCIAL RULES IN FAMILY INTERACTION

Investigator(s): Sally Ryan, Ph.D., Assistant Professor, Department of Psychology, Catholic University of America, Washington, D.C. 20064.
Purpose: To assess the differences in children's and adults' understanding of familial rules and the reasons for such rules.
Subjects: 96 middle class boys and girls, ages 6, 9, and 14.
Methods: Three interview studies are being conducted: (1) an interview with children about rules they have for dealing with parents or friends, (2) an interview with parents about rules given to children and the reasons given for rules, and (3) an interview with children about parents' rules and parents' reasons for rules. Chi-square analyses are being used to analyze data.
Duration: September 1976-June 1978.
Cooperating group(s): Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare.

39-LA-4 WORLDWIDE STUDY OF PARENTAL ACCEPTANCE-REJECTION THEORY

Investigator(s): Ronald P. Rohner, Ph.D., Professor; and Evelyn C. Rohner, Ph.D.Psych., Assistant Professor-in-Residence, Department of Anthropology, University of Connecticut, Storrs, Connecticut 06268.
Purpose: To test, edit, and refine Rohner's parental acceptance/rejection theory; more specifically, to determine whether humans everywhere respond uniformly to the withdrawal of parental warmth and affection, and whether similar psychological, social, and environmental conditions induce parents from different cultures and societies to behave in parallel ways toward their children.
Subjects: Two worldwide samples of 101 and 186 societies, including intracultural community studies in Newfoundland, Puerto Rico, Mexico, and Washington, D. C. Families and their children, ages 3 through adolescence, are included in the sample.
Methods: A universalist approach is used which includes (1) the cross-cultural survey method, (2) intracultural community studies, and (3) psychological research within the United States. Self-report questionnaires, field schedules, interview schedules, and behavior observations are used within these methodologies where appropriate.
Findings: Parental rejection is associated the world over with behavioral/personality dispositions: aggression or problems with the management of hostility and aggression, dependence, self-esteem, self-adequacy, emotional responsiveness, emotional instability, and negative world view.
Duration: 1960-continuing.
Cooperating group(s): Boys Town Center for the Study of Youth Development, Washington, D. C.
Publications: *They love me they love me not: A worldwide study of the effects of parental rejection and acceptance.* New Haven: HRAF Press, 1975.

39-LA-5 FAMILY VIOLENCE RESEARCH PROGRAM

Investigator(s): Murray A. Straus, Ph.D., Professor, Department of Sociology, University of New Hampshire, Durham, New Hampshire 03824; Richard J. Gelles, Ph.D., Assistant Professor, Department of Sociology, University of Rhode Island, Kingston, Rhode Island 02881; and Suzanne K. Steinmetz, Ph.D., Assistant Professor, Department of Family Studies, University of Delaware, Newark, Delaware 19711.

Purpose: To increase understanding of the causes and consequences of physical violence between members of the same family, including husband-wife violence, parent-child violence, and sibling-sibling violence.

Subjects: Samples vary from study to study. Sample sizes ranged from 80 to 2,500. People of all ages, sex, and socioeconomic status have been used.

Methods: The different research projects make use of a variety of methods and data analyses and include theoretical analyses. Case studies, sample surveys, laboratory experiments, and content analyses of historical data have all been used. Mode of statistical analysis depends on the nature of the data and the issue being studied. (See also *Research Relating to Children, Bulletin 30,* March-August 1972, Study 30-MB-4, p. 94.)

Duration: 1970-continuing.

Cooperating group(s): National Institute on Alcohol Abuse and Alcoholism; Alcohol, Drug Abuse, and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare.

Publications: (1) Straus, M. A. (Ed.) *The social causes of husband-wife violence* (in press). (2) Gelles, R. J. and Straus, M. A. Family experience and public support of the death penalty. *American Journal of Orthopsychiatry,* July 1975, 44, 596-613. (3) Steinmetz, S. K. and Straus, M. A. (Eds.) *Violence in the family.* New York: Harper & Row, 1974. (4) Gelles, R. J. *The violent home: A study of physical aggression between husbands and wives.* Beverly Hills, California: Sage Publications, 1974.

39-LA-6 MATERNAL BEHAVIOR WITH PREMATURE INFANTS

Investigator(s): Klaus Minde, M.D., F.R.C.P.(C), Director, Psychiatric Research, Hospital for Sick Children, 555 University Avenue, Toronto, Ontario, Canada M5G 1X8; and C. Corter, Ph.D.; and S. Trehub, Ph.D., Department of Psychology, Erindale College, University of Toronto, Toronto, Ontario, Canada.

Purpose: To provide descriptive information on the development of a caretaking relationship between a mother and her premature infant during the first 6 months of life.

Subjects: 40 premature infants and their mothers. Criteria for selecting the infants were: birthweight less than 1,501 grams, singleton birth, appropriate for gestational age; absence of physical malformation; and absence of serious medical complications at 72 hours of age. All of the subjects' parents spoke English and lived within 15 miles of the hospital.

Methods: Observations were made twice weekly of the infants alone and with their mothers during nursery visits in the hospital. Behaviors of mothers and infants were coded and recorded electronically. Records were also kept of the length and duration of mothers' telephone calls and visits to the ward. A standard feeding is observed in the home the first, second, and third month after discharge. Analyses will be made of changes in discrete behaviors over time across subjects and also of the sequence of interaction within subjects.

Findings: Mother's initial contact with the infant is brief and consists primarily of looking. In general, mothers displayed a pattern of adaptation so that visits increased in duration and intensity of activity. It was possible to classify individuals on the basis of level of activity. These classifications were consistent over time in the hospital, were carried over to the home situation, and were related to maternal attachment variables such as frequency and duration of visits and telephone contact.

Duration: April 1975-March 1977.

Cooperating group(s): Ontario Mental Health Foundation.

Publications: A paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans, 1977: Minde, K. *et al.* Mother-child relationships in the premature nursery: An observational study.

39-LA-7 STUDY OF FAMILY LIFE

Investigator(s): Andrew M. Greeley, Ph.D., Program Director; and William C. McCready, Ph.D., Senior Study Director, National Opinion Research Center, University of Chicago, 6030 South Ellis Avenue, Chicago, Illinois 60637.

Purpose: To survey different aspects of family life in specific ethnic groups, including family relationships, expectation for different family members, attitudes about work and school, various aspects of social behavior, and orientations toward and possible use of alcoholic beverages.

Subjects: Approximately 1,000 families with at least one child between ages 12 and 17 from Chicago, Minneapolis/St. Paul, New York, and Boston. Ethnic groups included Irish, Italian, Jewish, Swedish, and English.

Methods: Subjects were selected using a survey technique known as random digit dialing, in which all possible 3-digit exchanges were combined with 4-digit numbers from a random table of numbers. Families contacted in this manner were administered a short screening interview to determine their eligibility. Eligible families who agreed to participate received questionnaires for the selected parent and adolescent. Each respondent received an explanatory letter with the questionnaire, a brochure explaining details of the study, a permission form to be signed by the parent giving permission for the adolescent to participate, and two $2.00 bills. The questionnaires focused on relationships within the family, expectations from family members, how certain feelings and behavior are passed from parent to child, attitudes toward alcohol use, and how respondents feel about work and/or school.

Duration: October 1976-October 1978.

Cooperating group(s): National Institute of Alcohol Abuse and Alcoholism; Alcohol, Drug Abuse, and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare.

39-LA-8 FATHERS' MASCULINITY AND DAUGHTERS' COGNITIVE DEVELOPMENT

Investigator(s): David B. Lynn, Ph.D., Professor, Department of Applied Behavioral Science, University of California, Davis, California 95616; and Martha C. Austin, Ph.D., Professor and Lecturer, Department of Family and Consumer Studies, University of Guelph, Guelph, Ontario, Canada.

Purpose: To study videotaped observations of the interaction of fathers and daughters to test the following hypotheses: (1) fathers who adhere rigidly to traditional definitions of masculinity treat their daughters in a way that elicits coquettish behavior; (2) fathers who subscribe to flexible definitions of masculinity treat their daughters in a way that elicits task-oriented behavior; and (3) compared with daughters whose fathers subscribe to traditional standards of masculinity, daughters of fathers with flexible definitions are cognitively advanced.

Subjects: 30 fathers and their 12-year-old daughters.

Methods: The investigators will review videotaped observation sessions of the interaction of fathers and daughters. Criteria of selection are that subjects are living with both biological parents, that parents are U. S. citizens, and that parents have at least a high school education. Fathers will be administered the Masculine Role Judgment Scale; daughters will be administered cognitive tasks. Then fathers and daughters will work on a common task that will be videotaped.
Duration: 1976-1977.

39-LC-1 STRENGTHS AND WEAKNESSES IN BLACK FEMALE HEADED FAMILIES

Investigator(s): Charles B. Wilkinson, M.D., Executive Director; and William O'Connor, Ph.D., Senior Research Associate, Greater Kansas City Mental Health Foundation, 600 East 22nd Street, Kansas City, Missouri 64108.
Purpose: To evaluate black female headed families with a male adolescent to obtain information regarding socialization and community participation patterns of the mothers, community participation and competence of the sons, and the relationships between the two.
Subjects: 101 black adolescent males, ages 16 to 20; and their mothers who have been the sole parent in the family since the son's infancy.
Methods: Subjects were chosen from a list obtained from school cumulative records of adolescent males living in female headed families. Interview data were obtained in the ecosystem areas of work, recreation, transit, education, public agencies, shops, church, finance, health, mental health, legal, social, and home. Information from the mother concerned her socialization practices, satisfaction, perceived effects of racism, availability of community resources, and community participation in the above areas for all phases of the son's life, in addition to demographic data. Information from the son concerned his participation, competence, perceived effects of racism, future plans, level of aspiration, and demographic data. Cluster analyses were performed to group subjects in each variable and factor analyses were applied to describe trends of behavior. Scattergrams were then employed to determine relationships between variables.
Findings: Results suggest that mother's lifestyle and level of participation in the community influence her son's own community involvement and competence. Active mothers, who themselves seem to be influenced by availability of employment, housing, and number of children, appear to have provided a basis for their son's development of social and interpersonal skills. Mother's socialization practices (intrafamilial processes) seem most related to son's academic success.
Duration: June 1974-completed.
Cooperating group(s): Kansas City, Missouri School District.
Publications: *Psychiatric Annals* (in press).

39-LC-2 PARENTAL BELIEFS, PRACTICES, AND FAMILY STRUCTURE: EFFECTS ON THE CHILD'S COGNITIVE DEVELOPMENT

Investigator(s): Irving E. Sigel, Ph.D., Senior Research Psychologist; and Ann V. McGillicuddy-DeLisi, Ph.D., Associate Research Psychologist, Educational Testing Service, Princeton, New Jersey 08540; and James E. Johnson, Ph.D., Assistant Professor, Department of Psychology, University of Wisconsin, Madison, Wisconsin 53706.

Purpose: To investigate the interrelationships among the following variables as a function of family size, child spacing, and parental education and income: (1) parental belief systems relative to the abilities and development of their preschool children, (2) parental teaching and management strategies, and (3) the child's thinking abilities with respect to both the physical and social world.

Subjects: 120 intact families of three types varying in the number and spacing of children: (1) 40 families with an only child, age 3 to 4; (2) 40 three-child families, including a middle child, age 3 to 4, with fewer than 3 years spacing between the oldest and middle child; and (3) 40 three-child families, also including a middle child, age 3 to 4, but with greater than 3 years spacing between oldest and middle siblings. The oldest and middle children are the same sex within both types of three-child families. One-half of the families within each type of family structure are from the middle class and one-half from the working class.

Methods: Data collection requires two contact sessions within a 3-week period for each family. An interview schedule has been designed to evaluate the parents' construction of the developing child and parental communication strategies in teaching and managing the preschool child. The interview is administered individually to both parents. Data on parent teaching and management behaviors are obtained through observations of parent-child interactions on two tasks that occur in a structured laboratory setting. Each child included in the study is assessed with a battery of Piagetian-based tasks designed to evaluate his/her level of operatory development and problem solving abilities. Four tasks are used to evaluate levels of physical knowledge, and three tasks are used to evaluate thinking with respect to the social world. Data analyses will be conducted on a number of levels and will utilize a number of statistical techniques, including analyses of variance, multivariate analyses, correlations, and multiple correlations.

Findings: Preliminary analyses indicate that parental beliefs about how the child develops certain cognitive capabilities may be a potent influence on the parents' strategies for teaching and managing the child. In addition, the relation between parental behaviors, obtained through parent-child observations and children's performance on the battery of cognitive tasks indicate that parent distancing behaviors (Sigel, 1970) may favorably influence the development of thinking in the child.

Duration: August 1976-August 1978.

Cooperating group(s): Center for Population Research; National Institute of Child Health and Human Development; National Institutes of Health; Public Health Service; U. S. Department of Health, Education, and Welfare.

Publications: Information is available from Dr. McGillicuddy-DeLisi.

39-LF-1 CHANGES IN PRESCHOOL CHILDREN AND THEIR FAMILIES WHO RECEIVED INDIVIDUAL AND FAMILY COUNSELING

Investigator(s): Alice James, M.S.W., Director, Social Services; and Jean Bolley, M.S.W., Program Director, Early Childhood Development Center, Illinois Children's Home and Aid Society, 1122 North Dearborn Street, Chicago, Illinois 60610.

Purpose: To maintain an ongoing professional assessment of changes in children and their families who are receiving counseling and psychotherapy in the Early Childhood Development Center of the Illinois Children's Home and Aid Society; to be able to evaluate factors related to change; to test predictions of which clients will continue; and to examine parenting capacities related to the degree of disturbance in the child.

Subjects: Children, ages 2 to 6, and their parents who are referred to the Illinois Children's Home and Aid Society. Children are 50 percent male and 50 percent female; 65 percent white, 30 percent black, and 5 percent other minority. About 45 new families are added each year. Children are mildly, moderately, and severely disturbed preschoolers (divided into these categories by a specific set of criteria).

Methods: Data are collected using two schedules (one for the child and one for the parents) through which information related to significant areas of parenting and child functioning is collected. The therapist fills out schedules at the end of diagnosis and at closing or 1-year intervals during treatment. Reliability of questionnaires will be established by statistical methods, and possibly by independent judgments. Originally, a teacher rating sheet was designed to obtain outside evaluative data. However, families of the mild and moderately disturbed group, whose problems did not show in school, refused to have the school know about contact with the agency for fear the school would pigeon-hole the child as *problem*. This left the severely disturbed or the child from disorganized families as the only ones with outside assessments, so teacher ratings were abandoned. Data on about 100 cases have been analyzed by hand. A computer program is now being prepared. Data from the total number of schedules will be entered into the computer and yearly increments will be added.

Findings: Severely disturbed (psychotic) children (between one-fourth and one-third of the population) have parents who rate extremely low on parenting, protection, and promotion of development, but these parents can and do change on these and other items. The reality perception of the parents about the problem, the parents' self-esteem, and the degree of motivation for help with the child are the most significant variables for both continuation and change. Parents' capacity to use help and their motivation to seek help for themselves are not significant. A significant percent who have the capacity to use help are not sufficiently motivated in terms of the child's needs. There was an 80 percent accuracy in predicting at intake which families will continue.

Duration: 1973-continuing.

Cooperating group(s): (1) Evanston Mental Health Board. (2) University of Illinois, Chicago Circle, Jane Addams School of Social Work.

39-LF-2 ARE FATHERS NECESSARY FOR PARENT TRAINING GROUPS?

Investigator(s): Philip Firestone, Ph.D., Psychologist; and Mary Jo Kelly, Ph.D., Post Doctoral Intern, Psychology Department, Children's Hospital of Eastern Ontario, 401 Smyth Road, Ottawa, Ontario, Canada K1H 8L1.

Purpose: To ascertain whether teaching the mother to be a therapist for her children with behavior problems leads to the same degree of success as training both parents.

Subjects: 27 children referred to the Department of Psychology of the Children's Hospital of Eastern Ontario for problems such as hyperactivity, conduct disorder acting out, or aggression; and their parents.

Methods: Fifteen subjects were randomly assigned to either the mother-only or two-parent training group. An additional 12 subjects, who were put on a waiting list, acted as controls. Measures of behavior included Conners Teacher Rating Scale filled out by teachers and the Peterson-Quay Behavior Problem Check List filled out by the parents. Treatment lasted approximately 3 months. Ratings of behavior were made by teachers and parents before and after treatment and again 4 and 8 months following the end of treatment.

Findings: Treatment resulted in significant improvement in behavior. Both mothers-only and parent training groups differed significantly from the control group but not from each other. These results indicate that teaching behavioral management to mothers only is as effective as involving both parents in the treatment.

Duration: March 1976-April 1977.

39-LG-1 NEONATAL INTENSIVE CARE UNIT FOLLOW-UP

Investigator(s): Charles J. Alward, M.D., Assistant Director; and David B. Klein, M.D., Director, Neonatal Intensive Care Unit, Minneapolis Children's Health Center, Inc., 2525 Chicago Avenue, Minneapolis, Minnesota 55404.

Purpose: To evaluate the motor and mental development of infants cared for in the Neonatal Intensive Care Unit (NICU); and to evaluate the stress placed upon the family by the infant's illness.

Subjects: Infants who have been patients in the NICU.

Methods: Infants will be seen at ages 6 months, 1, 2, 3, 4, and 5 years for evaluation of mental/motor development (Bayley Infant Developmental Scale, Mental and Motor Subtests), dental development, and family dynamics (family assessment, health history, family situation, parent-child relationship, attachment). Testing will be done by an occupational therapist, a psychology intern, and a dental technician; family dynamics will be tested via questionnaire.

Duration: January 1977-continuing.

39-LG-2 THE IMPACT OF A HANDICAPPED CHILD ON THE FAMILY

Investigator(s): Sam J. Korn, Ph.D., Professor, Department of Psychology, Hunter College, City University of New York, 695 Park Avenue, New York, New York 10021; and Stella Chess, M.D.; and Paulina Fernandez, Ph.D., Medical Center, New York University, New York, New York 10003.

Purpose: To assess the impact of a handicapped child on family processes, and, reciprocally, the impact of family factors on the care of the child.

Subjects: 240 congenital rubella children, ages 3 to 6, approximately equally divided by sex; and their families.

Methods: Subjects were observed, interviewed, and administered formal tests. Two groups of 40 subjects each (families with distress vs. families with no distress) were studied in greater depth. Fisher exact probability and chi-square analyses were used to assess data.

Findings: The extent and severity of the child's handicap and child behavior/psychiatric factors are more focally related to family distress than family social factors.

Duration: December 1976-June 1977.

39-LG-3 POSTHOSPITALIZATION DRAWINGS OF CHILDREN

Investigator(s): Juanita W. Fleming, Ph.D., Assistant Dean for Graduate Education, College of Nursing, University of Kentucky, Lexington, Kentucky 40506.

Purpose: To determine if there are any differences in the drawings of posthospitalized school age children whose parents remained with them during hospitalization and those whose parents did not remain with them.

Subjects: Approximately 50 children, ages 8 to 12, who were in the hospital for the first time for elective surgery or an acute illness.

Methods: Children whose parents remained at the hospital during hospitalization were group matched with children whose parents did not remain at the hospital during hospitalization. At two periods following hospitalization, children were asked to draw a person and their family. The drawings are being compared with the child's perception of family relations.

Duration: April 1977-April 1978.

Childrearing

39-MA-1 RELATIONSHIPS AMONG CHILDREN'S PERCEPTIONS OF PARENT BEHAVIOR, PARENTS' INFERENCES OF THEIR CHILDREN'S PERCEPTIONS, AND PARENTS' SELF-PERCEPTIONS

Investigator(s): Gerald Y. Michaels, M.A., Department of Psychology, Michigan State University, Olds Hall, East Lansing, Michigan 48824.

Purpose: To examine whether there are systematic differences between parents' and children's perceptions of the parents' caregiving behavior, whether parents tend to differentiate between their self-perceptions of their behavior, and how they infer their children will view them; and to examine whether there are systematic differences between the way parents infer they will be perceived by their children and the way they are actually perceived.

Subjects: 80 child-parent pairs with 7-year-old children, making four child-parent sex dyads: mother-son, mother-daughter, father-son, and father-daughter. Subjects were predominantly middle socioeconomic status.

Methods: Parents and children completed modified Bronfenbrenner Parent Behavior Questionnaires designed to elicit their perceptions and inferences about the parents' behavior with the child. Parents' and children's responses were compared on three composite measures based on the results of a factor analysis of the responses to the questionnaire: loving, punishing, and demanding parent behavior. Analyses of variance (including Newman Kuels tests) and correlational analyses were used to examine these relationships.

Findings: Significant (or marginally significant) mean differences were found between children's perceptions and parents' self-perceptions, between children's perceptions and parents' inferences, and between parents' self-perceptions and parents' inferences on all three dimensions of parenting behavior. Results of a correlation analysis generally confirmed a conclusion that there was little correspondence between children's and parents' measures.

Duration: September 1975-completed.

Cooperating group(s): (1) National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare. (2) Michigan State University, Computer Institute for Social Science Research.

Publications: A paper presented at the 1977 meeting of the Midwestern Psychological Association, Chicago, Illinois: Michaels, G. Y.; Messé, L. A.; and Stollak, G. E. Relationships among children's perceptions of parent behavior, parents' inferences of their children's perceptions, and parents' self-perceptions.

39-MB-1 INFANT REARING PRACTICES IN CROSS-CULTURAL PERSPECTIVE

Investigator(s): John W. Hollomon, Associate Professor, Department of Early Childhood Education, Division of Education, College of Multidisciplinary Studies, University of Texas, San Antonio, Texas 78285.

Purpose: To investigate infant rearing practices across five ethnocultural American families; and to determine their similarities and differences in isolates, sets, and patterns of childrearing.

Subjects: Five middle class families: Black-, Chinese-, Mexican-, Russian-, and Swiss-American, each with one or more children.
Methods: An ethnographic questionnaire-interview instrument was developed and administered to the parents in the home setting, including observations of the physical and social environment. A comparative analysis of the data determined points of congruence and incongruence in practices related to birth and infancy including infant care, education, needs, play, linguistic input, family defense, cultural affect and values, human components, and parenthood.
Findings: Infant rearing practices differed at the isolate level. However, the sets constituting the patterns of practices were found to be more congruent than incongruent across ethnocultural families, particularly as related to expectations for and from children.
Duration: June 1976-April 1977.

39-MB-2 THE IDENTIFICATION OF TEXAS ANGLO, BLACK, AND CHICANO CHILDREARING AND CHILD CARE PRACTICES IN RELATION TO CHILD CARE CAREER COMPETENCIES

Investigator(s): Ida Santos Stewart, Ph.D., Associate Professor and Chairperson; and Norma K. Stone, B.B.A., Doctoral Candidate, Department of Early Childhood Education, University of Houston, Houston, Texas 77004.
Purpose: To insure the identification of the cultural factors in childrearing and child care practices that may influence training for child care personnel; specifically, to identify Anglo, Black, and Chicano childrearing and child care practices; and to compare regional differences.
Subjects: 374 Anglo, Black, and Chicano parents; 367 child care practitioners; and 52 professionals in Texas. The 94 day care centers from which the practitioners and parents were drawn served a minimum of 30 children and had either 80 percent Black, 80 percent Chicano children, or a tri-ethnic population.
Methods: Three interview instruments were developed for the study, one each for parents, practitioners, and professionals. A Spanish translation, following the Werner and Campbell methodology of decentering, was used with parents whose dominant language was Spanish. A pilot study was done from which final response categories were developed for the three instruments. The questionnaires were administered to the sample in six geographic regions in Texas during Spring 1975. The computer program, Statistical Package for the Social Sciences, was used to analyze the data.
Findings: The results documented an overall trend of general agreement among parents and practitioners on childrearing practices and attitudes toward child care centers. Only a few major differences were documented in the attitudes, opinions, and practices of Texas Anglo, Black, and Chicano parents and practitioners.
Duration: Spring 1975-completed.
Cooperating group(s): Texas Education Agency, Division of Occupational Research and Development.
Publications: A complete report is available from: Division of Occupational Research and Development, Department of Occupational Education and Technology, Texas Education Agency, 201 East 11th Street, Austin, Texas 78701.

39-MB-3 A COMPARATIVE STUDY OF COGNITIVE DEVELOPMENT AND ACADEMIC ACHIEVEMENT IN CHILDREN REARED COMMUNALLY AT SYNANON AND HOME REARED CHILDREN

Investigator(s): Linda Burke, Ph.D., Psychologist, Synanon Research Institute, Synanon Foundation, Inc., Marshall, California 94940.

Purpose: To compare the cognitive development and academic achievement of children reared communally from birth at Synanon and children from upper middle class home environments.

Subjects: 39 girls and boys, ages 2½ to 6½, reared communally from birth at Synanon; and 39 upper middle class home reared children matched for age and sex.

Methods: Approximately half of the Synanon parents had character disorder backgrounds. The mean Synanon parental education was 14 years. The home reared children were from upper middle class two-parent nuclear families in which mother was the primary caregiver. The parents of the home reared children had no character disorder history, and had a mean educational level of 16 years. The home reared children were screened to rule out physical, mental, and emotional problems. The McCarthy Scales of Children's Abilities were used to assess cognitive development, and the Peabody Individual Achievement Test was used to assess academic achievement.

Findings: Multiple mothering, per se, is not detrimental to cognitive development. Previous findings of lower IQs of children reared by multiple caregivers are probably caused by poor rearing, not multiple mothering. The mean IQ of Synanon reared children was 109; mean IQ of home reared children, 106. The Synanon children were significantly higher than the home reared children in academic achievement. The mean standard score for the Synanon children was 125; mean score for home reared children, 110. An analysis of variance revealed this difference to be significant at the .01 level.

Duration: September 1976-March 1977.

Cooperating group(s): National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U.S. Department of Health, Education, and Welfare.

Publications: Information is available from the investigator.

39-MB-4 AN ECOLOGICAL STUDY IN FAMILY RELATIONS AND CHILDREARING

Investigator(s): Richard J. Fiene, M.A., M.A.L.S., Child Psychologist, Bureau of Child Development, Pennsylvania State Department of Public Welfare, Health and Welfare Building, Harrisburg, Pennsylvania 17120.

Purpose: To study the ecological variables that influence the interactions and childrearing practices within families.

Subjects: 252 families with children, ages 0 to 6, evenly divided between rural and urban settings. Subjects were also divided according to socioeconomic status: 50 percent were eligible for Title XX; 50 percent were not.

Methods: Correlations among family expectations and community and school influence were computed. Data analyzed included setting (rural vs. urban), the nature and effect of supportive services on families, race of family, size of family, expectations and attitudes of teachers of the children, and teacher influence on family structure. The study was part of the Ecological Monitoring Information System. Data were collected primarily through interviews, questionnaires, and site review team visits.

Findings: Significant differences were found in childrearing patterns based on race, rural vs. urban setting, and size of family. Significant differences were also found between

parent and teacher expectations of a particular child's academic abilities, discipline methods, and future goals for the children.
Duration: January 1976-January 1977.
Cooperating group(s): Appalachian Regional Commission Federal Grant.
Publications: Information is available from the investigator.

39-MC-1 PARENTING EDUCATION THROUGH TELEVISION: AN EVALUATION OF THE *MIDDLE ROAD TRAVELER* SERIES FOR ADOLESCENTS

Investigator(s): Edward E. Will, B.A., Evaluator and Staff Research Assistant; and Martyn O. Hotvedt, Ph.D., Evaluation Director and Instructor, Evaluation Research Group, Program for Health Management, Baylor College of Medicine, Room 302H, Texas Medical Center, 1200 Moursund Avenue, Houston, Texas 77030.
Purpose: To evaluate, formatively and summatively, a 12-week televised (PBS) in-school parenting education series for junior high school students who are neither current nor expectant parents.
Subjects: 800 students, ages 12 to 15; and teachers from Houston, Texas schools. Subjects approximated the Houston school population, most recently estimated at 43 percent black, 22 percent Hispanic, and 35 percent white or other. Participants were 60 percent female and were drawn from 24 seventh through ninth grade classes in 12 urban schools which differed markedly in racial and socioeconomic composition.
Methods: Program content sought to promote competent childrearing skills by shaping attitudes on nurturance, discipline, parent-child communication, parental expectations, and family roles using televised peer and adult models. Some specific information regarding child health, nutrition, safety, and development, as well as the economics of childrearing, was also provided with the intent of encouraging teens to postpone parenthood until its many demands can be met. Class discussions and teacher reinforcement of the program supplemented weekly viewings. Students and teachers who viewed the series and/or supplied evaluation data did so in lieu of their usual class assignments in physical education, English, home economics, math, etc. The principal research activity was a 3-month pilot test of the series and supporting curriculum materials in fall 1976. Specially developed questionnaires were completed at both pre- and posttest by 280 students. Both the success of the curriculum objectives and various student attitudes were assessed. Data on student demographics, television use and preferences, and parenting attitudes and knowledge were used to evaluate the educational intervention. Supplementary data on participant perceptions of their own parents and various psychosocial dispositions were acquired using several standardized instruments. An instrument with wide-ranging content suitable to evaluate subsequent parenting education programs for this age group is being developed.
Findings: Sharp sex and racial differences in childrearing attitudes and knowledge distinguished pilot test participants at pretesting. Boys scored lower than girls in both affective and cognitive measures of parental expectations, nurturance, discipline, parent-child communication, and sex roles, and did not on the whole improve at posttesting. Girls, however, made substantial gains. Both boys and girls rated the programs as high or higher than either instructional or preferred commercial television in perceived appeal and realism. White, and especially black students, also made major gains evidenced in curriculum-referenced parenting knowledge and attitude measures. Hispanic students did not.
Duration: November 1975-March 1977.

Cooperating group(s): (1) Gulf Region Educational Television Affiliates, Houston, Texas. (2) Texas Department of Public Welfare. (3) Early Childhood Development Division of the Texas Department of Community Affairs. (4) Texas Education Agency. (5) Texas Child Care '76, Houston.
Publications: Copies of the final evaluation report are available from the investigators.

39-MC-2 *LET ME INTRODUCE MY SELF* PARENTING PROGRAM

Investigator(s): William R. Strait, Ph.D., Director of Project Development; Herman Williams, M.Div., Th.M., Director; and Lucie W. Barber, Ed.D., Director of Applied Research, Character Research Project, Union College, 207 State Street, Schenectady, New York 12305.
Purpose: To research and develop a parenting program for parents of newborn infants who are members of childbirth education organizations.
Subjects: Survey sample: 17 women and 16 men, ages 20 to 39, average educational level: B.S. degree. Field test sample: 18 women and 16 men, ages 20 to 49, average educational level: B.S. degree.
Methods: The program involved (1) an analysis of the structure and relationships of childbirth education organizations nation wide; (2) an analysis of the internal structures and felt needs of two local childbirth organizations; (3) a socioeconomic survey of members of the local organizations, which included an open-ended ranking of felt needs to be met in a parenting program; (4) preparation of synergistic field test program *vis a vis* the analysis and survey of local programs containing 5 monthly sessions; (5) a survey of socioeconomic status and parenting attitudes of each parent beginning the program; (6) monthly open-ended evaluation of each program which included a tape recording of each session that was evaluated on program effectiveness by three independent judges; (7) a reconduct survey of parenting attitudes of each parent completing the program; (8) field test analysis; and (9) program revision.
Findings: Preliminary results of the field tests indicate a significant improvement in parenting attitudes during the course.
Duration: February 1975-September 1977.
Cooperating group(s): (1) Childbirth Education Association, Albany, New York. (2) Family Centered Maternity Association, Schenectady, New York.
Publications: *Let Me Introduce My Self*. Schenectady, New York: Character Research Press, 1976 (LC 76-253-15).

SOCIOECONOMIC AND CULTURAL FACTORS

39-NA-1 ETHNIC DIFFERENCES IN COLLEGE PERFORMANCE

Investigator(s): Langdon E. Longstreth, Ph.D., Professor, Department of Psychology, University of Southern California, Los Angeles, California 90007.
Purpose: To investigate Jensen's Level I-Level II hypothesis in a real life setting.
Subjects: 20 black, 19 Asian, and 69 white college students, ages 18 to 25, both sexes, who were students in a child development course.
Methods: Subjects were assessed on three kinds of tests: true-false, multiple-choice, and essay and were administered a paired-associate memory test.
Findings: There were no ethnic differences on the paired-associate or true-false tests. Large significant differences were found on the multiple-choice and essay tests, with blacks scoring much lower than whites or Asians. Results are interpreted in support of Jensen's theory.
Duration: 1975-continuing.

39-NA-2 THE CULTURAL CONTEXT OF INTELLECTUAL DEVELOPMENT

Investigator(s): Phillip Kingsley, Ph.D., Senior Lecturer and Acting Head; and Robert Serpell, D.Phil., Senior Lecturer, Department of Psychology, University of Zambia, P.O. Box 2379, Lusaka, Zambia.
Purpose: To work toward a definition of intelligence that reflects the values, emphases, and cognitive orientations of Zambian culture(s), in order to develop culturally valid measures of intelligence for children.
Subjects: To date: 20 children, ages 5 to 10, both sexes; and 20 adults, both sexes. The children and adults are all members of the same rural village community in a Bomba-speaking area of Zambia.
Methods: Data collection includes (1) naturalistic observation of everyday activities of village children; (2) interviews with village adults concerning childrearing values, practices, and goals; (3) collection of adult ratings of the capabilities of specific children in defined hypothetical locally relevant situations and tasks; and (4) administration of selected locally-developed cognitive tests for validation against adults' ratings of the children.
Duration: January 1975-continuing.
Publications: Research reports of the Human Development Research Unit are available from the University of Zambia.

39-NB-1 HIGHLIGHTS OF A COMPARATIVE RESEARCH STUDY OF EARLY CHILDHOOD PROGRAMS IN COUNTRIES WITH CONTRASTING POLITICAL SYSTEMS

Investigator(s): Clare Rodney, Ed.D., Professor, Department of Early Childhood Education, California State University, Long Beach, California 90840.
Purpose: To compare early childhood programs in countries with contrasting political systems.
Subjects: Children, ages 3 months to 9 years.
Methods: Children were observed in a variety of settings including nurseries, nursery schools, orphanages, kindergartens, and primary schools. Many interviews were taped, and materials stating the philosophy and curricula for early childhood education were collected from the Ministries of Education in the countries visited. The four primary countries studied were Spain, Romania, Israel, and Italy. Information was also obtained in Portugal, Greece, France, Ireland, and England.
Duration: January 1975-continuing.
Publications: Information is available from the investigator.

39-NB-2 A LONGITUDINAL STUDY OF SCHOOL READINESS AND SCHOOL ACHIEVEMENT

Investigator(s): Marion M. de Lemos, Ph.D., Chief Research Officer; and Pat Larsen, B.A., T.P.T.C., T.I.T.C., Research Officer, Australian Council for Educational Research, P.O. Box 210, Hawthorn, Victoria, Australia 3122.
Purpose: To investigate differences in school readiness and achievement in Australian and immigrant children from different socioeconomic and language backgrounds; to study the relationship between school readiness and achievement and factors such as preschool experience, age of entry to school, parents' country of origin and period of residence in Australia; and to investigate the relationship between scores on the readiness tests and later school achievement in Australian and immigrant children.
Subjects: Initial sample: 334 boys and girls, ages 4½ and 5½ at the beginning of the study (on entry to school); 147 were from a high SES area (98 from an English-speaking background; 49 from a non-English-speaking background) and 187 from a low SES area (101 from an English-speaking background; 86 from a non-English-speaking background). Subjects were drawn from a random sample of schools from two contrasting socioeconomic areas in the Melbourne metropolitan area, an upper middle class, and a lower working class area. A sampling procedure based on birth dates was devised to obtain approximately equal numbers of children from English-speaking and from non-English-speaking backgrounds in each area.
Methods: The children were tested upon school entrance with a battery of school readiness and language tests (the Anton Brenner Developmental Test of School Readiness; the Engelmann Basic Concept Inventory, Part I; and the Grammatic Closure Subtest of the Illinois Test of Psycholinguistic Abilities), and with a battery of achievement tests at the end of their first, second, and third years of schooling (the Metropolitan Readiness Tests at the end of their Prep year, the Metropolitan Achievement Test Primary I Battery at the end of Grade 1, and the Metropolitan Achievement Test Primary II Battery at the end of Grade 2). A parent questionnaire distributed through the schools obtained information on country of birth, country of parents' origin, parents' period of residence in Australia, parents' first language, language spoken in the home, father's and mother's occupations,

parents' educational levels, and attendance at a preschool or day care center. The questionnaires were in English, but in the case of Italian and Greek families, an additional questionnaire in Italian or Greek was included. Comparisons between the readiness and achievement test scores of the four main groups were done using analyses of variance. Analyses of the relationship between test scores and background factors were done using analyses of variance and the AID program. Correlations between scores on the readiness and achievement tests were also undertaken.

Findings: Differences between the four main groups were highly significant on all the tests. The high SES English background group scored highest, and the low SES non-English background group scored lowest on all tests. Differences between the high SES non-English background group and the low SES English background group were less marked and generally not significant, although the trend was for the high SES non-English background group to score higher than the low SES English background group. The readiness test which correlated most highly with later school achievement was the Anton Brenner Developmental Test. Correlations between total score on this test and total score on the achievement tests ranged from .64 to .80, and these relatively high correlations were found for both the English background and the non-English background children. The background factors most closely associated with test scores were language background of the home, school area (high SES or low SES), father's occupation, and educational level of parents. Age on entry to school and sex were generally not significantly related to test scores, although there was some tendency in the English background group for girls to score higher on the reading tests and the boys to score higher on the mathematics tests. In the non-English background group, the tendency was for girls to score higher on both the reading and the mathematics tests, but these differences were more marked on the reading tests. Preschool attendance was significantly related to test scores, particularly in the case of the English background group. Period of preschool attendance was also important; children who attended preschool for a longer period scored higher than children who attended for a shorter period. There were no significant relationships between test scores and family size, birth order, or attendance at a day care center.

Duration: 1973-1978.

Publications: A paper on the preliminary results is available from Dr. de Lemos.

39-NB-3 ETHNICITY, SOCIOECONOMICS, AND SCHOOL ACHIEVEMENT

Investigator(s): James G. Cooper, Ed.D., Professor of Evaluation, College of Education, University of New Mexico, Albuquerque, New Mexico 87131.

Purpose: To determine the effects of ethnicity upon fifth grade achievement in order to assess the value of bilingual education.

Subjects: All fifth graders in the 88 public school districts of New Mexico. The percentages of Spanish surnamed pupils ranged from 0 to 100 percent.

Methods: An ecological model was applied in which school districts were the unit of analysis, rather than pupils or classrooms. The data were collected annually by the State Superintendent of Education. Data included pupil-teacher ratio, assorted standardized test scores, community variables (adult education level, family income), and other salient information.

Findings: Based upon the analysis of the 1975 data, ethnicity does not appear to be related to school success when the effects of socioeconomic variables have been controlled.

Duration: April 1977-September 1977.

39-NC-1 RELIGIOUS AND POLITICAL SOCIALIZATION OF CHILDREN

Investigator(s): Hart M. Nelsen, Ph.D., Boys Town Center for the Study of Youth Development, Catholic University of America, Washington, D.C. 20064.
Purpose: To study the religious and political development of children; and to examine how children view political and religious systems and the interrelationship between the two views.
Subjects: 3,000 children, ages 9 to 15 (grades 4 to 8), from rural, urban, and metropolitan communities in Minnesota. The subjects are parochial Catholic and public Protestant/Catholic/other school children.
Methods: Self-administered questionnaires were completed in the classroom setting. A multivariate statistical analysis is being used to analyze data.
Findings: Religiousness (traditional religiosity) drops over age. Parochial education is correlated with religiosity. Parents' religiousness (as reported by children) is correlated with religiosity. Affectivity rather than power concern is related to religiosity.
Duration: 1975-1978.
Cooperating group(s): Boys Town Center, Omaha, Nebraska.
Publications: A paper presented at the United States Catholic Conference, Washington, D.C. 1977: Nelsen, H. M.; Potvin, R. H.; and Shields, J. The religion of children. (2) Nelsen, H. M. and Potvin, R. H. The rural church and rural religion: Analysis of data from children and youth. *Annals of the American Academy of Political and Social Science*, January 1977, 429, 103-114.

39-ND-1 STATE-OF-THE-FIELD STUDY OF CHILD WELFARE SERVICES FOR MIGRANT CHILDREN

Investigator(s): David Cavenaugh, M.P.A., Research Associate, InterAmerica Research Associates, Inc., 2001 Wisconsin Avenue, N.W., Suite 275, Washington, D.C. 20007.
Purpose: To study the nature and extent of child welfare services for migrant families, including those who have settled out; to determine the number of migrant children receiving services and the number requiring services, in order to estimate total need; and to determine the interactional patterns between existing services and families in need.
Subjects: Child welfare systems in 12 states; and approximately 800 migrant mothers.
Methods: Data were collected in two stages. In Stage I, questionnaires related to services provided were mailed to state and local service providers (including farmworker agencies) in 12 states (both home base and user states). Agency personnel were also visited personally to obtain further information. In Stage II, approximately 800 migrant mothers, residing in the same states and counties as those visited above, were personally interviewed regarding services needed and services actually received.
Findings: The quality of social service delivery varies markedly. State departments of social service generally do not identify migrant children, and effective coordination between agencies at the local level is frequently lacking. Migrant mothers report few problems with use of health care, but infrequent use of other child welfare services, such as group home services, foster care, etc.
Duration: June 1976-June 1977.
Cooperating group(s): Office of Child Development; Office of Human Development; U.S. Department of Health, Education and Welfare.
Publications: Data will be published by the Office of Child Development.

39-NG-1 LEARNING AND EXPRESSIVE STYLES OF BLACK CHILDREN AS REFLECTED IN THEIR PLAY BEHAVIOR

Investigator(s): Janice Ellen Hale, Ph.D., Assistant Professor of Early Childhood Education, Department of Education, Clark College, 240 Chestnut Street, S.W., Atlanta, Georgia 30314.
Purpose: To obtain information about the manner in which Afro-American culture shapes the thinking of black children by observing their play behavior.
Subjects: Lower income Afro-American girls and boys, ages 2 to 6.
Methods: An extensive review of the literature was done, and an observation instrument was designed. Data are being collected through individual observations of children in a naturalistic setting.
Duration: September 1975-continuing.
Cooperating group(s): Spencer Foundation.

39-NG-2 IMPACT OF IMMIGRATION ON THE DEVELOPMENT OF CHINESE AMERICAN CHILDREN

Investigator(s): Betty Lee Sung, M.L.S., Assistant Professor, Department of Asian Studies, City College of the City University of New York, 138th and Convent Avenue, New York, New York 10031.
Purpose: To document the relationship of Chinese American children to their families, to their schools, and to their community, in an attempt to determine how the changes brought about by immigration modify the social environment of the children and whether these changes adversely affect their development.
Subjects: A select number of recent immigrant Chinese children in grades 3, 5, 7, and 10, living in New York City, who will be studied to see why some are seemingly well-adjusted while others have difficulty.
Methods: The study documented the areas, extent, and types of conflicts experienced by Chinese immigrant children. Research relied mainly on interviews, home visits, and observations and personal knowledge of the researchers who are intimately acquainted with the people and community about whom they write. The study will be more qualitative than quantitative.
Findings: Large-scale immigration into New York's Chinatown in recent years has created many problems for the ethnic community. The children have been affected by the long working hours of the parents. Fear seems to be the uppermost concern of both children and adults. Changing values and roles make for confusion and cultural conflict.
Duration: June 1976-June 1977.
Publications: Information is available from the investigator on (1) a preliminary comparison of Chinese American children from two elementary schools, one in Chinatown and one in the suburbs; (2) a compilation of raw data pertaining to crime and the gang situation in New York's Chinatown based on interviews with people who are informed about the true picture; and (3) childrearing practices in the Chinese American home.

39-NG-3 AFRO-AMERICAN CULTURE AND PLAY BEHAVIOR OF BLACK CHILDREN AS INDICATORS OF COGNITIVE STYLE

Investigator(s): Janice Ellen Hale, Ph.D., Assistant Professor, Department of Early Childhood Education, Clark College, 240 Chestnut Street, S.W., Atlanta, Georgia 30314.

Purpose: To design a conceptually relevant instrument to measure play behavior (defined as "skill and style of approach to people and materials") in order to obtain information on the cognitive style and ethnic stylizations of black children from low income families.

Subjects: Six male and six female 2-year-old black children from low income families. Interrater reliability will be determined using six additional children.

Methods: A year was spent reviewing the literature on Afro-American culture and reviewing observation instruments for observing play behavior to gain information about cognitive style. An instrument will be developed using categories from the literature and matching them with categories established from running records of the children's play. These categories will be merged and the instrument will be designed. Reliability and validity will be obtained on the instrument. Then a study will be designed.

Findings: A review of the literature has indicated that play behavior is an indicator of cognitive style. The literature also suggests that one's culture shapes cognition.

Duration: 1975-1978.

Cooperating group(s): Spencer Foundation.

Publications: Black children: Have they got roots? *First World: An International Journal of Black Thought,* May/June 1977.

EDUCATIONAL FACTORS AND SERVICES

General Education

39-OA-1 A STUDY OF TEACHER VERBAL BEHAVIOR BASED ON A PIAGETIAN INSTRUCTIONAL MODEL

Investigator(s): Donald J. Sheehan, Ed.D., Associate Professor, Department of Education, New York State University College, Oneonta, New York 13820.
Purpose: To construct a model of instruction based on the theory of Jean Piaget.
Subjects: 27 classroom teachers of grades 5, 7, or 9.
Methods: This is a descriptive study of the verbal discourse of teachers. Teacher discourse was categorized by eight judges as being either at the concrete instructional or formal instructional level. Interjudge reliability was .83 or higher in each of the 27 incidents.
Findings: Verbal discourse was more often at the concrete instructional level in 5th grade than in either 7th or 9th grades.
Duration: 1974-continuing.

39-OA-2 AIMS, ROLE, AND DEPLOYMENT OF STAFF IN THE NURSERY

Investigator(s): Philip S. Clift, Principal Research Officer; Martin Woodhead, Project Leader; and Shirley Cleave and Marion Griffin, Project Team Members, National Foundation for Educational Research, The Mere, Upton Park, Slough, Berks, SL1 2DQ, England.
Purpose: To examine the practices of staff in a sample of nursery schools and classes, focusing in particular on classroom practices, teacher role in the classroom, the differential attention of staff to children, and deployment of staff with different qualifications.
Subjects: Children, ages 3 to 4, attending nursery schools in the United Kingdom.
Methods: The principal method used in the study was structured observation in the nursery. Two observation instruments were specially developed by the team to record the work of the staff. The first was designed to give a description of the work patterns of various members of the staff who share responsibility for a group of children. The staff was scanned on a 2-minute cycle, and their behavior recorded on a two-dimensional category system consisting of their major activity and the context of that activity. The second observation instrument described the style of work of a single member of the staff throughout the school day. For this purpose, the category system was extended to four dimensions. Each change of behavior was recorded in terms of who initiated change, the new activity, the context of the activity, and verbalization during the activity. In addition to these formal instruments, informal observations of the organization of the nursery and the work of the staff were made, along with in-depth interviews of the staff about their perception of their role in providing children with a nursery experience. Of particular

interest were any effects that trends toward integrated nursery/primary education service are having on the role of nursery assistance in the care and education of young children.
Duration: April 1975-March 1978.
Cooperating group(s): Department of Education and Science.

39-OA-3 DEVELOPING MATERIALS FOR ASSESSMENT AND EVALUATION IN NURSERY EDUCATION

Investigator(s): Ray Sumner, Ph.D., Principal Research Officer; Margaret Bate, Project Leader; and Marjorie Smith, Project Team Member, National Foundation for Educational Research in England and Wales, The Mere, Upton Park, Slough, Berks, SL1 2DQ, England.
Purpose: To develop assessment materials for nursery schools and classes.
Subjects: Children, ages 3 to 4, in nursery schools and classes in the United Kingdom.
Methods: During the first stage of the project the investigators surveyed literature on preschool education related to assessment. Assessment tests and kits already devised for assessment were studied. Observations were carried out in a sample of nursery schools and classes throughout the country, looking at the complete picture of individual nurseries; observing in particular children's performance, the planning of the nursery day, and facilities and equipment available. Consultation with advisers and other research workers in the nursery field took place, in an attempt to define the aspects of the child's performance to be assessed. A group of advisers was formed consisting of lecturers in Nursery Education, Nursery Advisers, head teachers, and teachers. They were involved in all stages of developing materials for assessment. The second stage included development of a specification for assessment materials, devising items and carrying out pilot trials, field trials of penultimate materials and criterion group comparisons, and preparation for publication of a teachers' manual, training guides, and the assessment materials. Field trials were carried out by members of the Advisory Group and by staff in a number of nurseries throughout the country, some of which the team visited for observation.
Findings: The observations, consultations, and the advice and recommendations of the Advisory Group led to the formation of five categories for assessment: social thinking and social skills, cognitive performance, talking and listening, manual and tool skills, and physical skills. A method was devised to record the development of social skills as observed by the teacher.
Duration: April 1975-March 1978.
Cooperating group(s): Department of Education and Science.

39-OA-4 A STUDY OF THE IMPACT OF SPECIALLY DESIGNED SETTINGS ON CHILDREN'S INVOLVEMENT: A PILOT PROJECT

Investigator(s): Louise M. Berman, Ed.D., Professor; Jessie A. Roderick, Ed.D., Associate Professor; Diane M. Lee, M.A., Doctoral Student; and Shirley Browner, B.A., Master's Student, Department of Early Childhood/Elementary Education, College of Education, University of Maryland, College Park, Maryland 20742.
Purpose: To determine whether involvement, as described by verbal and nonverbal indicators, increased as children worked at language arts centers that were characterized by increasing possibilities for involvement.

Subjects: 12 first graders attending an open-space school in a suburban community, who spoke English and did not have a known speech impediment.
Methods: Each child was observed interacting with three specially designed learning centers, each of which increased in its possibilities for involvement. Nonverbal indicators of involvement were recorded using the Involvement Instrument. Verbal utterances were also recorded and categorized. A one-way repeated measures analysis of variance was performed to determine the significance of differences among means for the three levels of learning centers. The research project was a collaborative effort of elementary school staff and university personnel.
Findings: The differences at the three levels of learning centers were statistically significant at the .05 level for several nonverbal indicators of involvement and one verbal indicator. These findings suggest that as learning centers increased in complexity, so did the number of observed indicators of involvement.
Duration: Fall 1975-continuing.
Cooperating group(s): (1) Maryland State Department of Education. (2) Rippling Woods Elementary School. (3) Anne Arundel County School System, Annapolis, Maryland.
Publications: (1) Roderick, J. A. The Involvement Instrument, Occasional Paper Fifteen. College Park: University of Maryland, Center for Young Children, July 1975. (2) Information is available from: Mrs. Margaret Sherkey, Principal, Rippling Woods Elementary School, Wolfield Drive, Glen Burnie, Maryland 21061.

39-OA-5 AN ADVENTURE IN HUMAN RELATIONSHIPS: INTERNATIONAL SCHOOL-TO-SCHOOL EXPERIENCE

Investigator(s): Alice Van Krevelen, Ph.D., Professor and Chairman, Department of Psychology, Berea College, Berea, Kentucky 40404.
Purpose: To investigate interpersonal relationships between school children, parents, teachers, and communities involved in a foreign exchange program for 11-year-old children.
Subjects: Berea elementary school (K through 6) teachers, host parents, and host children; and children visiting foreign countries, their parents, and accompanying teachers.
Methods: Research methods included in-depth interviews; questionnaires given to children in all grades to investigate the impact of the foreign visitors; diaries kept by children and teachers visiting schools in foreign countries; and interviews with visiting children, host children, and their parents.
Findings: The impact of the foreign visitors on school and community is strong and positive.
Duration: 1972-1977.
Publications: Information is available from the investigator.

39-OA-6 MIDWEST MIDDLE SCHOOL SURVEY

Investigator(s): Thomas A. Sinks, Ed.D., Professor, Department of Education, Mankato State University, Mankato, Minnesota 56001; Marvin Pozdol, Ph.D., Professor, Cleveland State University, Cleveland, Ohio 44115; and Robert Malinka, M.A., Director, Middle School Research Center, Indianapolis, Indiana.
Purpose: To survey middle schools in Illinois, Minnesota, Wisconsin, Ohio, Indiana, and Iowa.

Subjects: Middle schools in six upper midwest states.
Methods: A postcard survey of every school district in each of the six states was conducted. After district middle schools were identified, questionnaires were sent. The nine-page questionnaire was completed by each middle school. Information was tabulated concerning curriculum, staff, reasons for establishing the modern middle school, student service activities, innovative practices, extra-curricular activities, and future plans. Data were disseminated to the schools through monographs of each state survey.
Duration: Fall 1976-Fall 1977.
Publications: Monographs for each state are available from the investigators.

39-OA-7 EDUCATIONAL NEEDS ASSESSMENT IN HUMAN GENETICS

Investigator(s): Faith M. Hickman, B.S., Staff Consultant, Biological Sciences Curriculum Study, 8383 South Boulder Road, P. O. Box 930, Boulder, Colorado 80306.
Purpose: To determine educational needs, priorities, and strategies for all levels of instruction related to human genetics, human genetic diseases, and birth defects.
Subjects: Teachers, students, physicians, basic researchers, parents of affected children, educators, and others participated in data collection.
Methods: Preliminary meetings were held with parents, students, teachers, interested individuals, and representatives from community groups to define present levels of knowledge and concern, the effectiveness of current educational programs, and the characteristics of the target groups. Interviews focusing on the current information base were held at schools, colleges, and health care centers. A 3-day preliminary needs assessment conference was held with participants from the fields of education/curriculum theory, obstetrics/gynecology, medical law, and screening program administration. In addition, several professional groups were invited to send representatives. From this conference, a working paper was compiled that served as a basis for discussions at a subsequent conference. A cross-section of the interest groups attended the second conference and developed a set of guidelines. A document delineating guidelines for educational priorities and curricular innovations will be oriented toward all groups which plan curriculum on human genetics and genetic disorders and birth defects.
Duration: October 1976-September 1977.
Cooperating group(s): National Foundation/March of Dimes.
Publications: A publication will be distributed by the National Foundation/March of Dimes.

39-OA-8 AN EVALUATION OF THE MINNESOTA COUNCIL ON QUALITY EDUCATION EARLY CHILDHOOD/FAMILY EDUCATION PROGRAM

Investigator(s): Michael Q. Patton, Ph.D., Director, Minnesota Center for Social Research, University of Minnesota, 2122 Riverside Avenue, Minneapolis, Minnesota 55454.
Purpose: To evaluate the implementation, processes, and outcomes of state supported early childhood/family education programs in order to aid legislative funding decisions and program improvement.
Subjects: 39 staff and 39 board members; and 125 parents from 13 early childhood/family education programs in Minnesota.
Methods: Site visits were made to 13 programs throughout the state of Minnesota. Thirty-

nine staff, 39 board members, and 125 parents were interviewed. Twenty-four program activities were observed using a systematic observation schedule developed by the Minnesota Center for Social Research. Interviews were content analyzed to determine major patterns in program strengths and weaknesses. Observations were described and content analyzed.

Findings: The programs represent exemplary implementation of legislation. Parents are highly supportive.

Duration: March 1977-April 1977.

Cooperating group(s): Council on Quality Education, Minnesota State Department of Education.

Publications: A 300-page report is available from: Minnesota Center for Social Research ($12.50).

39-OA-9 EFFECTS OF PRESCHOOL LEARNING ENVIRONMENT ON CHILDREN'S GROWTH IN EDUCATION

Investigator(s): Boyne Coats, Ed.D., Associate Professor; John Thompson, Ed.D., Assistant Professor; and Nancy Carlile, M.Ed., and Stephen Williams, M.Ed., Graduate Assistants, Department of Curriculum Instruction, College of Education, Memphis State University, Ball Education Building, Memphis, Tennessee 38152.

Purpose: To assess and contrast children's progress in structured and open learning environments.

Subjects: 28 boys and 19 girls, ages 3 to 5, randomly selected from six classes at Memphis State University's Children's School.

Methods: In this study, the efficacy of structured preschool classes utilizing directed activities and reading readiness guidance was compared to the efficacy of classes with more open structure that did not incorporate directed activities. A battery of tests was administered in Fall 1976 and again in Spring 1977. Tests included the Peabody Picture Vocabulary Test (Form A, pretesting; Form B, posttesting), the Vineland Social Maturity Scale, and the Boehm-Slater Cognitive Skills Assessment Battery.

Duration: October 1976-June 1977.

39-OA-10 A STUDY OF TEACHER VERBAL BEHAVIOR BASED ON A PIAGETIAN INSTRUCTIONAL MODEL

Investigator(s): Donald J. Sheehan, Ed.D., Associate Professor, Department of Education, New York State University College, Oneonta, New York 13820.

Purpose: To determine if teacher verbal discourse is more analogous to the formal operational stage than to the concrete operational stage of development.

Subjects: 22 classroom teachers in grades 5, 7, and 9.

Methods: Six 10-minute segments of each teacher were audiotaped. Science, social studies, mathematics, and language arts instruction were included. A rating scale was developed, based on characteristics of formal operational and concrete operational stage discourse, containing lists of characteristics of instructional modes. Eight judges rated each segment. Interjudge reliability (minimum of .75) was found.

Findings: The data indicated that teacher discourse was more frequently classified as concrete instruction as the grade level became lower.

Duration: 1975-completed.

39-OA-11 A LONGITUDINAL STUDY OF CURRICULAR ARTICULATION IN SOCIAL STUDIES

Investigator(s): B. Carl Oliver, Ed.D., Professor, College of Education, University of Tulsa, 600 South College, Tulsa, Oklahoma 74104.
Purpose: To determine if articulation efforts made at the preservice level will enhance articulation at the inservice level.
Subjects: 25 college juniors in elementary education; and 25 college juniors in secondary social studies education.
Methods: Separate elementary and secondary social studies methods courses were combined into one course. Future elementary and secondary social studies teachers are studying K-12 social studies education together. Follow-up studies will be conducted of student and inservice teaching.
Duration: 1976-1982.
Cooperating group(s): Tulsa Public Schools.

39-OA-12 THE UTILIZATION OF INCARCERATED PERSONS AS INSTRUCTORS

Investigator(s): Nancy J. Perry, M.L.S., Administrator, Prisoner Release Program, Holy Apostles Center, 346 West 20th Street, New York, New York 10010; Joe Ann Horton, M.L.S., Children's Librarian, New York Library, 10 Hill Street, Newark, New Jersey; and Cora Watkins, M.Ed., Teacher, Providence Education Department, 80 Elmgrove Avenue, Providence, Rhode Island 02906.
Purpose: To record the effects of prisoners as tutors of visiting children and their parents.
Subjects: 50 prisoners; children, ages 3 to 10; and parents of both sexes.
Methods: A program was set up in which prisoners worked with children and parents at the prison site. Media systems were available to tutors and children. Results were recorded on tape and by hand. The pilot project in New York will be redesigned in other correctional facilities.
Duration: May 1977-May 1978.
Cooperating group(s): (1) New York State Department of Correctional Services. (2) Columbia University, Teachers College.

39-OB-1 EVALUATION OF A COMPUTER ASSISTED CAREER INFORMATION SYSTEM

Investigator(s): Carl Helwig, D.Ed., Associate Professor, School of Education, Old Dominion University, Norfolk, Virginia 23508.
Purpose: To evaluate the use of an information retrieval system in career education.
Subjects: Approximately 300 children in grades 7 through 12.
Methods: Terminals in guidance counselors' offices were available to the counselors and students in grades 7 to 12. The computer system stored information about local job opportunities and on colleges. Parents, teachers, pupils, and guidance counselors in participating schools and pupils and counselors in nonparticipating schools were surveyed on their attitudes toward their school's system of career education, dissemination of information, and performance. Measures included Osgood's semantic differential and Crites's Attitude Scale and Competence Test.
Findings: Reliability and validity of the measures used have been established.
Duration: August 1976-August 1978.
Cooperating group(s): Augusta County, Virginia Public Schools.
Publications: Information is available from the investigator.

39-OD-1 UNIVERSITY OF WINDSOR SPORTS INSTITUTE FOR RESEARCH/CHANGE AGENT RESEARCH (SIR/CAR) VIEWS OF CHILDREN/YOUTH SPORTS

Investigator(s): Dick Moriarty, Ph.D., Director; Marge Holman Prpich, M.Ed., Editor; and Gordon Olafson, Ph.D., Graduate Coordinator, Sports Institute for Research/Change Agent Research, Faculty of Human Kinetics; and J. Powell, Ph.D., Professor, Faculty of Education; and Megib Ragab, Ph.D., Professor; and Ralph Cowen, Ph.D., Faculty of Business Administration; and Walter Romanow, Ph.D., Department of Communication Studies, University of Windsor, Windsor, Ontario, Canada N9B 3P4.

Purpose: To evaluate policy utilizing the SIR/CAR systems analysis technique to detect and reduce the gap between avowed goals and actual behavior in children/youth school sport or amateur athletic organizations.

Subjects: In general, the studies have focused on girls and boys, ages 6 to 20; and adults involved in children/youth sports as executives, officials, administrators, coaches, sponsors, or interested parents.

Methods: The SIR/CAR systems analysis technique combined organizational analysis, organizational development, and organizational research in a conventional pretest, posttest experiment research design utilizing control groups. The methodology used goes under the acronym SAW: Seeing actual behavior by personal observation and media monitoring of behavior; concomitantly conducted with Audio interview and Written opinionnaire to assess avowed goals, means, and changes. The SAW methodology was utilized along with research and development analysis in Phase I (Organizational Audit) and Phase III (Organizational Re-Audit). Phase II consisted of participating clinics utilizing group dynamics techniques in order to develop a cadre of change agents within the organization under study. Instrumentation consisted of a semidirected focused audio interview guide (along with verbal opinionnaire to establish validity, reliability, and objectivity) and written opinionnaires based on the SDFI audio interviews. Behavior was monitored by a personal observation checklist recording initial behavior (smiling, neutral, or frowning) and by recording cooperative and conflictual acts by the personal observation team and concomitantly monitoring of behavior (using 35 mm slides as well as audiovisual tape and film). Statistical treatment was conducted by the University of Windsor Media Center using the Statistical Package for the Social Sciences and the Statistical Analysis System.

Findings: There is low correlation between avowed goals and actual behavior in most children/youth sports organizations. When this discrepancy is brought to the attention of those involved in the organization by means of data generated on the organization and audiovisuals demonstrating this discrepancy, those within the organization can reduce the discrepancy, thereby increasing their effectiveness (achievement of goals) and efficiency (maintenance of the organization). In policy evaluation and change research, change agent research (which brings the theoretician and practitioner together) is to be preferred to pure basic research.

Duration: Summer 1972-completed.

Cooperating group(s): (1) Canada Council, Ministry of Education (Ontario). (2) Ontario Royal Commission on Violence in the Communications Industry. (3) U.S. National College Physical Education Association for Men and Women. (4) University of Windsor, International Business Studies Research Unit, Media Centre, and Computer Centre.

Publications: (1) A paper presented to the University of Ottawa Faculty of Law, Common Law Section, Annual Symposium on Sports Law and Policy, Ottawa, Ontario, Canada, February 1977: Moriarty, D. SIR/CAR views sport or athletics, violence and the law. (2) Moriarty, D. Avoiding organizational self destruction in amateur sport or professional athletics by SIR/CAR. *Canadian Journal of Applied Sport Sciences,* June 1976, 1(2), 123-131. (3) Moriarty, D. Integrate or disintegrate. *Journal of the Canadian Association for*

Health, Physical Education and Recreation, May-June 1976, 42(5), 23-28. (4) A paper presented to the Seventy-Ninth Annual National College Physical Education Association for Men Conference, Hot Springs, Arkansas, January 1976: Moriarty, D. and Guilmette, A. M. SIR/CAR field research in acton. (5) Moriarty, D.; Duthie, J.; and Ragab, M. Change agent research: Combining organizational development and organizational research. *Management by Objectives,* May 1975, 4(3), 44-45.

39-OE-1 DIFFERENCES IN CREATIVE THINKING AND ABILITY AMONG PREKINDERGARTEN CHILDREN IN TWO SELECTED PRESCHOOL SETTINGS: IMPLICATIONS FOR TEACHER EDUCATION

Investigator(s): Dorothy Westra, Ph.D., Assistant Professor, Department of Education, Calvin College, Grand Rapids, Michigan 49506.
Purpose: To examine the relationship between creative thinking and two different preschool experiences; and to draw implications for teacher education.
Subjects: 42 prekindergarten children, in their last term of preschool before entering kindergarten, from each of two selected preschools. School A is an experience-oriented preschool located on a farm. School B is part of a preschool to grade 9 system and is in the same area of the city from which School A draws heavily. The children had all spent more than 6 months in the program they attended.
Methods: Analysis of covariance was used to determine the relationship between each preschool setting and creative thinking scores (as measured by the Torrance Test, Thinking Creatively in Action and Movement), and between sex of subject and creative thinking scores. Family background scores computed from parent questionnaires were held constant. Correlations were done on creative thinking scores and family background scores in separate areas such as emotional climate, intellectual stimulation, and level of family activity. Instruments used included a parent questionnaire and an observation guide designed for the study.
Duration: March 1977-September 1977.

39-OE-2 READY FOR SCHOOL—EMERGENCY SCHOOL AID ACT (ESAA) PROJECT

Investigator(s): Marilyn Segal, Ph.D., Associate Professor; and Earl Hughes, Ph.D., Associate Professor, Department of Early Childhood Education, Nova University, 3301 College Avenue, Fort Lauderdale, Florida 33314.
Purpose: To develop a model for parent education that builds parenting skills and enhances effectiveness in providing readiness experiences for preschool children who will be attending integrated schools.
Subjects: 140 families with children, ages 3 to 4.
Methods: Eighty families in Broward and 40 families in Tallahassee, Florida participated in the treatment program. The treatment consists of an 8-month period of weekly visits by a home visitor, each approximately an hour in length. Each home visit consists of (1) talking with the parents about significant parent-child activities that have occurred during the previous week; (2) helping the parent record the child's progress in a "Me Book," a specially designed loose leaf book that includes weekly collections of the child's products and written records of the child's progress (e.g., new places he has gone, new people he has met, new words he has learned, etc.); (3) presenting an educational toy or game and showing parents how to use it to develop critical thinking skills; and (4) introducing a

theme that reflects the interest of 4-year-old children. Alternative activities and projects related to a weekly theme are discussed with parents. The main emphasis of these activities is to stimulate language development and perceptual readiness, and to encourage parents to engage their children in conversations around the theme. Many activities are specifically designed to promote ethnic understanding and a broader outlook on cultural differences. In addition to the monthly visits, several group activities are scheduled throughout the year to bring parents and children together and to familiarize the families with the school where they will attend kindergarten. A control group consisting of 20 volunteer families was contacted and pretested but not serviced. Tests used to measure achievement include the Schaefer Parent Attitude Research Instrument, the Draw-A-Man Test, the Scott-Foresman Vocabulary Test, and the Denver Developmental Screening Test.

Duration: July 1976-June 1978.

Cooperating group(s): (1) Florida A&M University. (2) Office of Education; U.S. Department of Health, Education, and Welfare.

39-OF-1 PERSISTENCE OF PRESCHOOL EFFECTS: POOLING OF LONGITUDINAL DATA ON EARLY INTERVENTION

Investigator(s): Irving Lazar, Ph.D., Chairman; and Virginia Ruth Hubbell, M.S.; and Harry Murray, M.R.P., Research Associates, Consortium on Developmental Continuity, Department of Community Service Education, College of Human Ecology, Cornell University, N 135 MVR Hall, Ithaca, New York 14853; and James Peterson, Education Commission of the States, 1860 Lincoln Street, Denver, Colorado 80203.

Purpose: To secondarily analyze the systematically pooled original and current follow-up data from the longitudinal early childhood intervention programs in a heuristic investigation of main effects and of interaction effects of various types of interventions; the age, duration, and intensity of the intervention; and the structure and demographic characteristics of the child's family on the child's cognitive and academic development.

Subjects: Approximately 1,400 low income children involved in 10 original early intervention programs. At the beginning of these various programs, the children ranged in age from 3 months to 6 years. At the present follow-up period they range from ages 9 to 18. Approximately 88 percent are black and 60 percent are males. The children live in seven different areas of the country including the New York City Metropolitan Area, five other urban areas, and two rural areas.

Methods: The main data to be analyzed include IQ scores, achievement test scores, standardized socioemotional ratings, school grades, grade placement, and parent and child interview data. Demographic comparability of samples will be determined first. Parallel statistical analyses of all individual programs will be performed, followed by analyses of comparable pooled data. Subgroup analyses will also be performed for several of the programs which study similar questions; e.g., curriculum variation. New instruments are being developed utilizing input from all 10 researchers. They include a parent interview, a youth interview, and a behavioral rating scale conversion instrument.

Duration: July 1975-June 1977.

Cooperating group(s): Researchers cooperating on the project include Kuno Beller, University of Pennsylvania; Martin Deutsch, New York University; Ira J. Gordon, University of Florida; Merle B. Karnes, University of Illinois; Phyllis Levenstein, Verbal Interaction Project; Louise Miller, University of Louisville; Francis Palmer, SUNY Stony Brook; Edward Zigler, Yale University; Myron Woolman of Washington, D.C.; David Weikart, High/Scope Foundation; and Susan Gray, George Peabody College for Teachers.

Publications: (1) Palmer, Frank. Has compensatory education failed? (2) Lazar, Irving and Hubbell, Ruth. Research issues in developmental continuity. (3) Research reports are available from the investigator.

39-OF-2

PERFORMANCE AND SELF-CONCEPT OF HIGH SCHOOL STUDENTS IN SMALL CLASSES

Investigator(s): John Sigal, Ph.D., Research Director, Department of Psychiatry, Jewish General Hospital, 3755 Côte Street, Catherine Road, Montreal, Quebec, Canada H3T 1E2.
Purpose: To determine whether placement in classes of less than 15 students results in academic benefit and/or psychological consequences in adolescents.
Subjects: Tenth grade students in small and normal sized classes of a public high school.
Methods: Grades in English literature, English composition, French, and mathematics were recorded at the end of grades 9, 10, and 11. All students were in standard sized classes in grade 11. Subjects responded to the Miskimins Self-Goal Other Discrepancy Scale at the beginning and end of grade 10.
Findings: Students in small classes did poorer academically in composition and French at the end of grade 10 and in French at the end of grade 11. Negative effects were also noted in the prosocial and general subscales of the Self-Goal Other Discrepancy Scale.
Duration: September 1972-completed.

39-OF-3

HOME ENVIRONMENT AND THE INTERNATIONAL ASSOCIATION FOR THE EVALUATION OF EDUCATIONAL ACHIEVEMENT (IEA) SURVEYS

Investigator(s): Edward Kifer, Ph.D., Assistant Professor, Department of Educational Psychology and Counseling, College of Education, University of Kentucky, Lexington, Kentucky 40506.
Purpose: To ascertain the extent to which process variables in the home are related to school achievement and affective variables as measured in the IEA Six-Subject Survey.
Subjects: Children, ages 10 and 14, from 17 different countries. The sample sizes range from approximately 1,000 to 5,000 per country, subject matter, and age. Included is a variable that designates the gender of the respondent.
Methods: Since these are survey data, no control group was included. Persons within countries, however, were considered replications in terms of confirming the findings from a particular country. Data from the IEA Survey were analyzed including three cognitive variables (science achievement, reading comprehension, and work knowledge-verbal IQ), and three affective variables (whether or not the subject liked school, how many more years of schooling s/he expected, and whether school was a good thing). A variety of statistical techniques were used, mainly based on correlations and regressions.
Findings: As one would expect, the process variables, given their small number, are substantial predictors of achievement and affect. It appears as though it is necessary to think of a different statistical model to explain the relationships for each age group.
Duration: January 1974-January 1978.
Cooperating group(s): (1) Spencer Foundation. (2) International Association for the Evaluation of Educational Achievement. (3) Access to the IEA data bank is also available from: Richard Wolfe, Teachers College, Columbia University and Mrs. Douglas Ferguson, Stanford University Library.
Publications: A paper presented to the Max-Planck-Institute for Educational Research, Berlin, Germany.

39-OG-1 YEARS OF TRANSITION: A 3-YEAR FOLLOW-UP PROJECT OF CHILDREN LEAVING THE PACIFIC OAKS KINDERGARTEN PRIMARY GROUP

Investigator(s): Ann Rubendall, M.A., Director, Infant/Toddler Parent Program, St. George's School, 1712 Lila Lane, La Canada, California 91011; and Doris O. Smith, Children's Program Coordinator, Pacific Oaks College and Children's School, 714 West California, Pasadena, California 91105.
Purpose: To assess the highlights or problems of transition into a new school environment after attending an ungraded, open classroom primary unit at Pacific Oaks Children's School; and to determine areas of strength or difficulty shown by the children in the follow-up study over a 3-year period.
Subjects: 32 children, ages 8 to 13, who completed second or third grade at Pacific Oaks in addition to attending at least 2 years in the Kindergarten-Primary Unit. The 1974-75 sample included 10 children, the 1975-76 sample included 18 children (9 new subjects), and the 1976-77 sample included 29 children (13 new subjects).
Methods: The first 2 years of data collection included for each child (1) a conference with Pacific Oaks staff to talk over projections, strengths, and weaknesses of the child participating in his/her first year of transition; (2) a written form filled out by parents that surveyed their concerns and expectations; (3) an assessment of class environment and initial contact with teachers at the new school situation (Open Space Observation Guide, Ferguson, 1974); (4) three questionnaires (developed for the study by Rubendall) sent to parents and teachers of the children to assess major areas of transition over the course of the school year, combined, if possible, with three visits concurrently to the classrooms; and (5) the Self-Esteem Inventory and Self-Esteem Behaviors Form, filled out by the child, a parent, and a teacher (Coopersmith 1967 and 1975, Form B). The third year follow-up included a questionnaire to parents and teachers once during the year, which was based on findings of the first 2 years and was developed by Rubendall. A control group was used in the third year consisting of a random sample of same sex and age public school students in the same classrooms. Control group children were rated by teachers.
Findings: Results for the first 2 years report on academic skills, social and emotional adjustment, adaptation to school, and self-esteem.
Duration: 1974-1977.
Cooperating group(s): Dewing Foundation.
Publications: Information is available from the investigators.

39-OG-2 REDWOOD FRESHMAN STUDY

Investigator(s): Walter S. Lee, Ed.D., Psychologist; and Richard F. Frakes, M.A., Dean of Students, Redwood High School, Larkspur, California 94939.
Purpose: To assess the dimensions of perceived new trends among high school freshman students in the areas of attendance, behavior, grades, and attitudes.
Subjects: Student sample: 59 male and 41 female students randomly selected from the freshman class of 689. The sample represented 14.5 percent of the total class population. Teacher sample: 40 Redwood High School teachers who teach classes specifically for freshman students (e.g., Core English, Introduction to Social Studies).
Methods: All attendance data for students in the sample during the fall semester of 1975 were collected and recorded in two categories: excused and unexcused absences. The respective middle school for each student was contacted and requested to provide attendance data for the previous year (8th grade). Grade point averages were computed for fall semester 1975 for each subject. Grades from 8th grade were requested for each student

from their respective middle school if not available from cumulative records. The combined participating project team developed the Redwood Freshman Attitude Survey, a 45-item survey instrument. The items were developed to assess attitudes which were seen as affecting freshman students and their behavior in the areas being studied. The instrument was designed as a four-point rating scale. The uniform response categories to each item of the instrument were (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. These categories allowed comparison between items on the basis of strength of response. The survey instrument was completed with electrographic pencils and scored and analyzed by computer. Except for identifying data, the Teacher Attitude Survey was developed in a similar fashion with input from teachers. Several of the items were similar to the student survey. Both instruments were field tested and modified prior to administration.

Findings: In the area of student attendance, there was a very significant increase in the mean rate of absence in the first semester of high school. Compared to 8th grade, the mean rate of absence increased by 107 percent. Among Redwood freshmen, girls had a higher excused absence rate than boys. However, boys had a higher unexcused rate than girls. The rate of full-day unexcused absences was quite small (14.1 percent) compared to full-day excused absences (85.8 percent). The study validated the inverse relationship between attendance and grades. This was true for both excused and unexcused absence. Students with high grades tend to have low absence, those students with high absence tend to have low grades. While patterns of excused absence appeared to begin in middle school and continue, or increase, in high school, students with unexcused absence appeared to be a new and different group. Generally speaking, the freshmen attitudes were those that educators and parents would wish. A strong contrast, or conflict, of attitudes (between students and teachers) on one topic was clearly in evidence. Students felt that as freshmen they should be able to choose teachers and subjects, that moving to Redwood High School has been a positive experience, that having different teachers and other grade levels in their classes was *not* a problem, and, finally, that students were *not* given too much freedom at Redwood. On the other hand, teachers felt that a more highly structured program for freshmen would help their transition and adjustment, tighter restrictions should be placed on program changes for freshmen, and that freshmen students are *not* prepared for moving from elementary to high school. An important area of agreement between students and teachers related to the relatively lower incidence of marijuana use among freshmen students. Teachers expressed a strong desire for more information (educational, personal, social) about their freshmen students and for more direct communication with counselors regarding student progress and teacher expectations.

Duration: February 1976-continuing.

Publications: Information is available from the investigators.

39-OG-3 THE EFFECT OF SETTING ON THE LANGUAGE BEHAVIOR OF KINDERGARTEN TEACHERS

Investigator(s): Kelvin Lee Seifert, Ph.D., Assistant Professor, Department of Educational Psychology, Faculty of Education, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2.

Purpose: To test the effects of teaching/learning settings on specific language behaviors of teachers of young children.

Subjects: 10 teachers-in-training in the Early Childhood Education Certification Program of the University of Manitoba.

Methods: Observations were made during practice teaching sessions of naturally occurring teaching behavior. Two specific settings compared transition times and small group activities. Language behavior of teachers was time sampled every 10 seconds and categorized

into one of six categories of behavior. Chi-square and t-tests were used to evaluate the observational data.
Findings: The setting influences teaching behavior in discrete ways, not in an overall global way. Transitions correlate with much more commanding/requesting behavior than do small group activities.
Duration: Fall 1976-Fall 1977.
Cooperating group(s): (1) University of Manitoba, Research Board. (2) University of Manitoba, Early Childhood Education Program.
Publications: Today for tomorrow. *Journal of Early Childhood Education Council of Manitoba* (in press).

39-OG-4 TOWARD A THEORY OF STUDENTHOOD

Investigator(s): G. deVoss, Ph.D., Researcher in Ecological Settings, Department of Education, University of California, Santa Barbara, California 93106.
Purpose: To study students' interpretations of the schooling experience, so that a general theory of classroom ecology may be reached.
Subjects: Phase I: 40 elementary school children, ages 6 to 12. Phase II: 150 elementary school children, ages 6 to 12. Subjects for both phases came from low, middle, and high socioeconomic status homes.
Methods: The research is nonexperimental, hypothesis-generating, and involves ethnographic observation, open-ended interviewing, and a reiterative cycle of data gathering, analysis, more data gathering, and reanalysis until the data are valid and reliable.
Duration: February 1977-September 1977.
Cooperating group(s): University of California at Santa Barbara, Social Process Research Institute.

39-OH-1 AN EVALUATION OF TWO TYPES OF INSERVICE PREPARATION FOR TEACHING CHILD DEVELOPMENT AND ORIENTATION TO CHILD CARE OCCUPATIONS IN SECONDARY SCHOOL HOME ECONOMICS CLASSES

Investigator(s): Barbara A. Holt, Ph.D., Assistant Professor, Home Economics Department, Louisiana State University, Baton Rouge, Louisiana 70803.
Purpose: To determine whether students of teachers who were given step-by-step instructions to use ready made curriculum materials, or students of teachers given a workshop to motivate them to design their own units of study would be more favorably inclined toward child care occupations.
Subjects: 900 female ninth grade home economics students; and 53 teachers from 20 Louisiana parishes. 600 of the students and 29 of their teachers participated in the follow-up study 1 year later.
Methods: There were two experimental and one control groups of teachers, each of whom used one class of Home Economics I students for the study. All data were collected by questionnaires. Data were analyzed by computer using analysis of variance. All instruments were designed for the study, except Rotter's IE Scale and the Torrance Creativity Tests used with teachers.
Findings: Students of teachers motivated to design their own study units to integrate child care occupation concepts into child development units were more favorably inclined and

involved in activities leading toward child care occupations both immediately after the unit of study and 1 year later.
Duration: January 1975-June 1977.
Cooperating group(s): (1) Louisiana State Department of Education. (2) Louisiana Tech University College of Home Economics.
Publications: A final report will be available from the Home Economics Division of the Louisiana State Department of Education.

39-OH-2 CHILDREN'S CAREER ASPIRATIONS AND CAREERS THEY ACHIEVED AS ADULTS

Investigator(s): Ralph C. Preston, Ph.D., Emeritus Professor, Graduate School of Education, University of Pennsylvania, Philadelphia, Pennsylvania 19104.
Purpose: To determine (1) the stability of children's career aspirations over a 4-year period; (2) the realism and fancifulness of these aspirations; (3) to what extent these aspirations are fulfilled; (4) how faithfully aspirations are recalled in adulthood; (5) what factors adults attribute to their eventual careers; and (6) how they rate their satisfaction with their careers.
Subjects: 13 girls and 11 boys, from upper middle class homes, age 10, when they first recorded their aspirations; age 50, when responding to follow-up questionnaires.
Methods: Children recorded their career aspirations two to four times between ages 10 and 14. Questionnaires were sent to those who could be located at age 50. Questions were designed to supply answers to questions listed above.
Duration: December 1937 (Follow-up, January 1977-January 1978).

39-OJ-1 COLLABORATION BETWEEN TEACHERS AND PARENTS IN ASSISTING CHILDREN'S READING

Investigator(s): John Tizzard, Ph.D., Director; W. N. Schofield, M.Sc., Research Officer; and Jenny Hewison, M.Sc., Research Officer, Thomas Coram Research Unit, University of London Institute of Education, 41 Brunswick Square, London WC1N 1AZ, England.
Purpose: To foster, on an experimental basis, the practice of having parents hear their children read at home; and to measure the effect on children's reading attainment.
Subjects: Over 400 children attending six state primary schools in a multiracial working class area of London—no selection by sex, IQ, etc.
Methods: Children were initially tested at age 6 and are being followed for 3 years. Children's reading ability is assessed using standardized group tests. There are three experimental groups, each containing two schools. Schools were randomly assigned to groups. In the first group, parent-teacher collaboration is fostered. Parents are visited at home and encouraged to hear their children read at home. In the second group, children are given extra help with reading in school by a qualified teacher. The third group is a control. The reading progress of children is assessed several times over the 3-year period. Cross-sectional and longitudinal comparisons are to be made using multivariate techniques. Cross-sectional comparisons are being made involving other cohorts of comparable size. Qualitative examination of the problems of enhancing home-school collaboration is also being carried out.
Duration: March 1976-March 1979.
Cooperating group(s): (1) Local Education Authority, London Borough of Haringey. (2) Department of Education and Science.

39-OK-1 INTEGRATION AND ACHIEVEMENT SCORES IN SAN FRANCISCO

Investigator(s): Peter Esainko, M.A., Statistician, Integration Department, San Francisco Unified School District, 135 Van Ness Avenue, Room 21, San Francisco, California 94102.
Purpose: To investigate whether primary schools complying with desegregation criteria of balance show greater gains in achievement scores than do schools that are imbalanced ethnically.
Subjects: 58 primary schools and three special schools on which a matrix sampling of students was done.
Methods: Data collection was mandated by the state. Imbalanced and isolated schools were used as the control group. Mobility of the student body was examined to confirm that effects found were school effects. Measures used included Fishers' exact test and the Mann-Whitney U Test.
Findings: Schools in ethnic balance show greater gains in achievement scores than those out of balance, which, in turn, show greater gains than isolated schools. Mann-Whitney results $p \sim .01$. Contrary to expectation, high black imbalanced schools did better than high white imbalanced schools.
Duration: November 1976-completed.
Cooperating group(s): California State Department of Education.
Publications: A paper, "Integration and achievement scores in San Francisco," is available from the investigator.

Specific Skills

39-PA-1 ADDITION A[illegible]D SUBTRACTION PROBLEM SOLVING AMONG FIRST GRADERS IN THREE [illegible]NTRIES

Investigator(s): Robert G. Underhill, Ed.D., Professor of Mathematics Education; and Jay H. Shores, Ed.D., Assistant Professor of Foundation, College of Education, University of Houston, Houston, Texas 77004.
Purpose: To study inter- and intracultural relationships of performances on two types of addition word problems, three types of subtraction word problems (modeling and accuracy), and the Test of Quantitative Comparisons (TQC) among children in Houston, Texas; Delhi, India; and Taipei, Taiwan.
Subjects: 36 first grade children from each city, ages 72 to 94 months. Subjects were stratified to represent a cross-section of the cities' public school populations.
Methods: Subjects were individually tested with the Houston Additive and Subtraction Problem Solving Test which consisted of six subtraction, four addition, and one transition item. Subjects were required to use manipulatives. Each item was scored for accuracy and modeling behavior. The TQC, a conservation related measure, was also administered individually to children. Subjects were randomly selected from the stratified schools. Data were subjected to factor analyses and a nested analysis of variance.
Findings: Developmentally, take-away subtraction is easier for Houston children than comparison or additive subtraction. There were no differences between modeling and accuracy scores on transformational and nontransformational addition. TQC scores were related to modeling and accuracy scores.
Duration: November 1975-November 1977.
Cooperating group(s): University of Georgia, Center for Mathematics Education Research.

39-PA-2 MORALE AND PERFORMANCE OF SAME AGE PEER TUTORING PARTNERS AS A FUNCTION OF RELATIVE STATUS AND EQUITY

Investigator(s): Sidney Rosen, Ph.D., Head; and Dave Schubot, M.S., Graduate Student, Department of Social Psychology; and Evan Powell, Ed.D., Associate Professor, Department of Educational Psychology, Institute of Behavioral Research, University of Georgia, Graduate Studies Building, Athens, Georgia 30602.

Purpose: To study the effects of role and relative competency of same age tutor-tutee pairs in relation to the dependent variables of satisfaction and performance.

Subjects: 94 sixth grade mathematics students, both white and black, from a local junior high school.

Methods: Students were divided into high, medium, or low competency groups on the basis of past mathematics grades. From these scores, one-third of the students were placed in same competency, same sex peer tutoring pairs; while the other two-thirds were placed in unequal competency, same sex pairs. Under these conditions, tutors helped tutees on mathematical topics for 2 weeks. After this, roles were exchanged and tutoring continued for 2 more weeks. Satisfaction and performance were assessed at weekly intervals. Multivariate contrasts were used to analyze the data.

Findings: Results indicate that greater satisfaction, but not performance, was related to being the tutor and being in a status congruent situation where the tutor was most competent. This data combined with data from a follow-up replication showed that performance was also related to these conditions.

Duration: March 1975-August 1977.

Cooperating group(s): National Institute of Education; U. S. Department of Health, Education, and Welfare.

Publications: A paper presented at the meetings of the Southeastern Psychological Association, Miami, Florida, May 1977: Rosen, S.; Powell, E.; and Schubot, D. Morale and performance of same-age peer tutoring partners as a function of relative status and equity.

39-PB-1 SOCIAL DIALECT AND READING

Investigator(s): George Marsh, Ph.D., Professor; and Peter Desberg, Ph.D., Department of Psychology, California State University, 1000 East Victoria Street, Dominguez Hills, California 90747.

Purpose: To determine the effects of black dialect on various subskills of reading.

Subjects: Children who speak a black dialect, and a control group of children who speak standard English.

Methods: A continuous measure of dialect radicalism, the Social Dialect Feature Inventory (SDFI), was devised to assess the degree to which a child's dialect differed from standard English. With this measure, a number of features of black English dialect could be elicited in the context of a nonlinguistic task, yielding a continuous score based on the use of one or more black English constructions on each of a number of items.

Findings: Dialect has a substantial effect on several aspects of reading performance.

Duration: 1974-1978.

Publications: A paper presented at the Annual Meeting, American Educational Research Association, San Francisco, April 1976: Desberg, P. *et al.* The relationship between nonstandard dialect and academic development.

39-PB-2 PERCEPTION AND RETENTION IN CHILDREN'S READING

Investigator(s): David A. Wicklund, Ph.D.; and Leonard Katz, Ph.D., Professor, Department of Psychology, University of Connecticut, Storrs, Connecticut 06268.
Purpose: To examine the processes involved in single word perception.
Subjects: Children in grades 2 through 6: good and poor readers.
Methods: An information processing approach was used to examine the difference between good and poor readers. Good and poor readers were selected on the basis of scores on achievement tests administered at the sample schools. Reaction times to word or word-like stimuli were analyzed. Visual searches, tachtoscopic presentation, and hemifield presentation were used.
Findings: The positional visual redundancy of words in English is a variable that is important to the reading process. The effect of this redundancy occurs at the visual processing stage of encoding involving letter perception.
Duration: 1973-1977.
Cooperating group(s): National Institute of Education; U. S. Department of Health, Education, and Welfare.
Publications: Mason, M. and Katz, L. Visual processing of non-linguistic strings: Redundancy effects in reading ability. *Journal of Experimental Psychology: General,* 1976.

39-PB-3 CHILDREN'S PREFERENCES IN STORY SETTINGS BETWEEN REALISM AND FANTASY, PRESENT AND PAST, AND NATIVE AND FOREIGN

Investigator(s): Ralph C. Preston, Ph.D., Emeritus Professor, Graduate School of Education, University of Pennsylvania, Philadelphia, Pennsylvania 19104; and Patricia A. Guth, Ed.D., Director of Curriculum, Pennridge School District, Perkasie, Pennsylvania 18944.
Purpose: To determine any developmental differences in children's preferences for story settings that could contribute to decisions about curriculum in literature and social studies.
Subjects: Approximately 200 children from a Pennsylvania township in grades 1, 4, and 8.
Methods: The Swayne Preference Inventory, a forced choice instrument, was administered to all subjects. Data were analyzed to determine the relationship of preferences to school grade, chronological age, intelligence, and reading achievement.
Duration: April 1977-April 1978.

39-PB-4 INDIVIDUAL STRATEGIES IN READING AND SPELLING

Investigator(s): George Marsh, Ph.D., Post-Doctoral Fellow; and Morton Friedman, Ph.D., Professor, Department of Psychology, University of California, 405 Hilgard Avenue, Los Angeles, California 90024.
Purpose: To assess the development of strategies in reading and spelling from early childhood to adulthood.
Subjects: Normal and reading disabled students in second grade through college.
Methods: An assessment device consisting of novel words embedded in a story context was used to infer strategies used by subjects to deal with unknown words in reading and spelling.

Findings: Systematic changes in strategies occur with development. An initial guessing strategy is replaced with a decoding strategy, which is in turn replaced by an analogy strategy.
Duration: September 1976-September 1977.
Cooperating group(s): (1) Public Health Service; U. S. Department of Health, Education, and Welfare. (2) National Science Foundation. (3) Fernald School.

39-PB-5 THE RECREATIONAL READING INTEREST OF CHILDREN IN KINDERGARTEN THROUGH SIXTH GRADE BY CATEGORIES OF BOOKS AND BY TITLES

Investigator(s): Pamela Werton-Dalton, Ed.D., Assistant Professor, Department of Education, University of Texas, San Antonio, Texas 78285.
Purpose: To determine the titles and the categories of books that children in grades kindergarten through six prefer to read.
Subjects: 1,800 children, ages 5 to 13, chosen randomly from San Antonio school districts. At least 100 of each sex at each grade level were included in the population.
Methods: Children were interviewed individually on a one-to-one basis. Specific categories of books were listed and the children were asked to select the categories of books they like to read most. The interviewer then read the 55 categories, and the child responded verbally to the categories he liked to read. Two-way contingency tables were used to compare sex, socioeconomic status, grade level, and individual reading level in relation to the categories. Normative data were also gathered on each child.
Findings: Seventy-five percent of the children were unable to identify by title their favorite book read to them by parents or teachers, or stated that their teachers did not read to them. In comparing categories, there was a relationship between categories of books and sex, race, age, and socioeconomic status.
Duration: September 1976-December 1977.

39-PC-1 IMPLEMENTATION OF SCIENCE: A PROCESS APPROACH USING AN INDIVIDUALIZATION APPROACH

Investigator(s): W. R. Zeitler, Ph.D., Associate Professor, Department of Science Education, University of Georgia, Athens, Georgia 30602.
Purpose: To implement a science program in the elementary school which eliminates communication difficulties such as reading and permits learners to progress at their own rate.
Subjects: Children in grades 1 through 6 attending 13 county school systems.
Methods: Children's scores on the evaluative instruments of the science program (individualized lessons) were compared with children studying the same program, taught using small group or large group instruction. Teacher interventions were surveyed.
Findings: Tentative results to date indicate there are some advantages for the individualized approach based on a comparison of scores from individualized instruction, small group instruction, and large group instruction.
Duration: August 1975-completed.

Special Education

39-QE-1 KARNES FOLLOW-UP STUDY OF EARLY EDUCATION PROGRAMS AT THE UNIVERSITY OF ILLINOIS

Investigator(s): Merle B. Karnes, Ed.D., Professor, Department of Special Education, Institute for Child Behavior and Development, Colonel Wolfe School, 403 East Healey Street, Champaign, Illinois 61820; and Irving Lazar, Ph.D., Professor, College of Human Ecology, Cornell University, Ithaca, New York 14850.

Purpose: To follow-up, after a minimum 10-year interval, children who had participated at ages 3 to 5 in one of five different model programs for the disadvantaged: Karnes Ameliorative (ITPA based), Bereiter-Engelmann (DISTAR), Montessori, Community Integrated, or Karnes.

Subjects: 120 boys and girls, ages 13 to 16 at the time of follow-up, who were involved in one of five model preschool programs from 1965 to 1967. Subjects were from economically disadvantaged backgrounds when enrolled in a preschool program.

Methods: All possible target children were located. Each was given the Wechsler Intelligence Scale for Children-R, and a structured interview covering education, work, and experiential history. Data were also gathered from school records. Parents were given a structured interview concerning the educational, medical, and personal development of the child. Data were analyzed using a variety of techniques (including comparison with information from children from similar follow-up studies) which will contribute to the data bank. Included in the analysis will be a comparison of data across children in the five different model programs.

Duration: July 1976-June 1977.

Cooperating group(s): (1) Education Commission of the States. (2) Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare. (3) Numerous local school districts.

Publications: Results will be prepared for dissemination in the professional literature and through federal channels.

39-QF-1 PARENTAL EVALUATIONS OF PSYCHOEDUCATIONAL REPORTS

Investigator(s): Romeria Tidwell, Ph.D., Assistant Professor; and Arthur Singer, M.A., Graduate Student, Graduate School of Education; and Jack Wetter, Ed.D., Adjunct Assistant Professor, Director, Psychological Services, Marion Davies Children's Clinic, University of California, 405 Hilgard Avenue, Los Angeles, California 90024.

Purpose: To investigate and determine what expectations, concerns, and ideas parents have regarding psychoeducational evaluations.

Subjects: 44 parents whose children were outpatients at a Learning Disorder Clinic.

Methods: Parents had brought their children to a Learning Disorder Clinic to obtain a psychoeducational evaluation. They were administered a 17-item questionnaire at the conclusion of the psychoeducational evaluation which had been conducted by school psychology interns. Frequencies and percentages of parent responses were calculated for each item of the questionnaire.

Findings: Results indicated positive impressions regarding psychoeducational evaluations, their usefulness, and their content. The findings suggest that parents (1) value the psychoeducational evaluation because of the information it provides, (2) show interest in learning ways in which they can help their child with his/her problems, and (3) explore many different services and professions as they attempt to help their child.

Duration: October 1976-March 1977.

39-QF-2 LEARNING DISABILITY PROFILES

Investigator(s): William Svoboda, M.D., Associate Professor, Department of Neurology and Pediatrics, Medical Center, West Virginia University, Morgantown, West Virginia 26506.

Purpose: To study the causes, presentations, academic performance deviations, neurophysical findings, soft signs, and the behavioral reactions in children with specific learning disabilities, in order to improve recognition and remediation techniques.

Subjects: 500 girls and boys, ages 5 to 15, with an intelligence range of mild retardation to genius, were selected by referrals. Children with a variety of actual and suspect handicaps or overt damage risks were represented.

Methods: Subjects were examined by one of three physicians: a specialist in developmental disabilities and retardation, a pediatric neurologist, or a pediatric neurologist with special expertise in learning disabilities and developmental deviations. The children were subjected to a battery of psycholinguistic and academic performance evaluations. Parent and teacher evaluations were obtained via questionnaires. Types of errors made on tests were analyzed, and correlational analyses were done on test performance, physician, and teacher-parent evaluations.

Findings: Specific profiles and related problems are emerging for specific insults. Specific behavioral deviations, often overlooked, are also more important than realized.

Duration: January 1972-July 1977 (Phase I).

39-QF-3 AN INVESTIGATION OF THE EFFECT OF PUBLIC LAW 94-142 "CRITERIA FOR DETERMINING THE EXISTENCE OF A SPECIFIC LEARNING DISABILITY" AS APPLIED TO STUDENTS IN A PRIVATE CLINIC PREVIOUSLY DIAGNOSED AS LEARNING DISABLED

Investigator(s): Kaye Theimer, Ph.D., Adjunct Assistant Professor, Department of Special Education and Communicative Disorders, University of Tulsa, 600 South College, Tulsa, Oklahoma 74104.

Purpose: To determine how many children currently diagnosed as learning disabled in a private clinic setting would be excluded or accepted in a public school learning disabilities class as a result of the application of the formula used as criteria in Public Law 94-142.

Subjects: 22 learning disabled children enrolled in Tulsa University's Stoia Center. Sample selection was based on students with IQ and academic test scores administered in the same calendar year.

Methods: Public Law 94-142 proposes the following formula to be used in diagnosing learning disabilities:

$$\text{CA (chronological age)} \left(\frac{\text{IQ}}{300} + 0.17\right) - 2.5 = \text{severe discrepancy level}$$

Diagnostic evaluations that had been completed on the subjects in four areas of functioning were applied to the formula. Areas assessed were intellectual, academic, perceptual, and language. The intelligence measure chosen was the Wechsler Intelligence Scale for Children. Academic measures were the Wide Range Achievement Test, the Peabody Individual Achievement Test, and the Spache Reading Test.

Findings: Five of the 22 students qualified without subjective recommendations on the part of learning disability team members.

Duration: November 1976-March 1977.

Cooperating group(s): University of Tulsa, Jayne Ann Stoia Learning Center.

Publications: Entered as public record in a General Accounting Office publication.

39-QH-1 STIMULATING TO POTENTIAL (STP)

Investigator(s): William Hoehle, II, Ph.D., Director; Peg DuBord, B.A., Child Development Specialist; William Gingold, Ph.D., Associate Director, Infant and Young Children's Department; and Marie Bristol, M.A., Ex-Assistant Director, Children-Adolescent Service, Southeast Mental Health and Retardation Center, 700 - 1st Avenue South, Fargo, North Dakota 58102.
Purpose: To train parents to provide therapy/education to their children on a daily basis in a home teaching program.
Subjects: 24 children, ages 0 to 4, who were enrolled in the STP program from July 1, 1975 to June 30, 1976.
Methods: This program is designed to meet the needs of developmentally delayed, behaviorally disordered, or other types of handicapped preschoolers in rural areas where other forms of treatment are unavailable. Parents are oriented to the philosophy and goals of STP and sign a STP parent-teacher contract. The program is implemented on a 6-week trial basis and continued if the 6-week trial is successful. The home consultant prepares an individualized curriculum for each STP subject which is implemented by the parents. The home consultant visits the home weekly to evaluate progress toward educational goals and to introduce new programs.
Findings: The 1975-1976 program entailed 618 home visits and resulted in 915 individual prescriptions, 35 percent of which were written by parents. The visits and individual prescriptions resulted in 2,185 occurrences of parent interaction. Seventy-eight percent of the prescriptions written were successful.
Duration: 1973-continuing.
Cooperating group(s): (1) Bureau of Education for Handicapped; Office of Education; Education Division; U.S. Department of Health, Education, and Welfare. (2) Title XX.
Publications: Publication lists are available from Dr. Hoehle.

39-QH-2 SELECTION AND TRAINING OF PERSONNEL IN EARLY SPECIAL EDUCATION

Investigator(s): M. Patricia Simmons, Ph.D., Associate Professor and Co-Director of the Model Infant-Family Project, Department of Special Education, California State University, 5151 State University Drive, Los Angeles, California 90032.
Purpose: To identify competencies for special education personnel using a multidisciplinary team approach.
Subjects: 108 teachers; 132 parents; and 60 support personnel from 34 infant and preschool special education programs in California.
Methods: Competencies needed were identified through a survey. All categories of handicap were covered for children, ages 0 to 5, in both public and private schools. Teacher training faculty were interviewed, a review of the literature was conducted, and programs were visited. A checklist of needed competencies was compiled.
Duration: May 1974-December 1976.
Cooperating group(s): (1) First Chance Project; Bureau of Education for Handicapped; Office of Education; U.S. Department of Health, Education, and Welfare. (2) California Consortium of H.C.E.E.P. Projects. (3) California State Department of Education.
Publications: A position paper will be published by the State of California, Department of Special Education.

SOCIAL SERVICES

39-RA-1 NATIONAL STUDY ON SELECTED ISSUES OF SOCIAL SERVICES TO CHILDREN AND THEIR FAMILIES

Investigator(s): Anita Schroeder, Ph.D., Senior Statistician, Survey Consultant, Westat, Inc., 11600 Nebel Street, Rockville, Maryland 20852.
Purpose: To determine the number of children being served by the public child welfare system, the types of services they receive, and the kind of personnel providing the services.
Subjects: Approximately 12,000 children under age 18, who receive services through public child welfare agencies. Over 300 public welfare agencies in 41 states are being sampled.
Methods: A two-stage probability sample design has been adopted, in which a county or a group of contiguous counties is surveyed in the first stage, and a child within a county or group of contiguous counties is surveyed in the second stage. Data will be collected via a child questionnaire. Both Westat and local office personnel will be involved in the data collection.
Duration: 1976-1979.
Cooperating group(s): (1) Children's Bureau; Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare. (2) Peat, Marwick, Mitchell & Co.

39-RD-1 TRANSRACIAL ADOPTION

Investigator(s): Rita James Simon, Ph.D., Professor, Institute of Communications Research, 222b Armory, University of Illinois, Urbana, Illinois 61801; and Howard Altstein, Ph.D., Associate Professor and Assistant Dean, School of Social Work, University of Maryland, 525 West Redwood Street, Baltimore, Maryland 21201.
Purpose: To trace the development of and alternatives to transracial adoption (TRA); to discuss the political and cultural considerations of TRA; and to examine racial awareness, identity, and attitudes of nonwhite children transracially adopted and of their adoptive white parents and siblings.
Subjects: 204 white adoptive families, including 199 transracially adopted nonwhite children, ages 3 to 7; and 167 white biologic children, ages 3 to 7, of adoptive parents.
Methods: Case histories, questionnaires, and interviews (both structured and open) were analyzed. Statistical treatment of the data included percents, means, and chi-square analyses.
Findings: Transracially adopted nonwhite children and their white adoptive siblings showed no significant differences in attitude toward or preference for one racial group. Nonwhite children racially perceive themselves as accurately as do their white siblings.
Duration: 1972-completed.
Cooperating group(s): National Institute of Mental Health; Health Services and Mental Health Administration; Public Health Service; U. S. Department of Health, Education, and Welfare.

39-RE-1 ASSESSMENT OF VARIABLES ASSOCIATED WITH SUCCESS IN FOSTER CARE

Investigator(s): Alice James, M.A., Director, Social Services, Illinois Children's Home and Aid Society, 1122 North Dearborn Street, Chicago, Illinois 60610.
Purpose: To obtain staff predictions of outcome at initial referral; and to test some of the variables related to successful foster care placements.
Subjects: All children, ages 0 to 18, in foster care at Illinois Children's Home and Aid Society. From November 1973 to November 1976 there were between 150 and 200 cases.
Methods: Assessment schedules were developed by the total foster care staff. Four schedules are completed by the caseworker within the first 3 months and yearly. They include assessment of (1) the natural family, (2) the child, (3) the foster family, and (4) the foster family with the child.
Duration: November 1973-continuing.

39-RE-2 THE IMPACT OF THE NEW YORK COURT REVIEW OF CHILDREN IN FOSTER CARE: A FOLLOW-UP REPORT

Investigator(s): Trudy Bradley Festinger, D.S.W., Associate Professor, School of Social Work, New York University, 3 Washington Square North, New York, New York 10003.
Purpose: To examine the impact of the review by the New York Family Court on the movement of children out of foster care.
Subjects: 235 children, ages 1 week to 13 years at placement, who entered foster care for the first time in 1970, who remained in foster care continuously for at least 2 years, and who were in a foster home or group home when the agency handling their case submitted a petition to the Family Court.
Methods: All cases fitting the above sample criteria were reviewed by the Family Court by 12/31/73. Data for the follow-up were collected from the Family Court records and from the files of the New York City Division of Special Services for Children, Department of Social Services. A primary analysis was made using cross-tabulations and appropriate statistical techniques.
Findings: Findings include information on children in foster care, court review procedures, social agency compliance with court orders, amount of surrender and freeing, child location by June 1975, and the impact of the court on children in foster care.
Duration: June 1975-completed.
Cooperating group(s): (1) New York Family Court. (2) New York City Division of Special Services for Children. (3) New York State Temporary Commission on Child Welfare.
Publications: The impact of the New York Court review of children in foster care. A follow-up report. *Child Welfare,* September/October 1976, 55(8), 515-544.

39-RE-3 REVIEW SYSTEMS FOR PREVENTING UNNECESSARY FOSTER CARE

Investigator(s): W. Eugene Claburn, Ph.D., Director, Foster Care Research Project, Bureau of Research, Planning, and Program Development, Division of Youth and Family Services, 1 South Montgomery Street, Trenton, New Jersey 08625.
Purpose: To test the effects on case outcomes of periodic reviews of children in out-of-home placements.
Subjects: 663 children: two representative cohorts entering supervision of a statewide public child welfare agency.

Methods: Data were collected through (1) a review of the literature on foster care case management and review systems, (2) conceptual clarification, (3) comparisons of case planning and case outcomes between representative cohorts of reviewed and nonreviewed foster children, (4) analysis of agency memoranda and internal reports reflecting the process of planning and implementing review, (5) survey of representative caseworkers and supervisors participating in review and of key agency administrators, and (6) analysis of financial costs and benefits related to case review.

Findings: The common perception that there are large numbers of children in foster care because of inadequate case management is not substantiated by the literature often cited in support of it. Also, there is little reason to believe that case review can compensate for other deficiencies in the system. There are irreconcilable disparities among the purpose of case review, its method, and the nature of child welfare casework; e.g., (1) to achieve the purpose of review, the monitoring unit needs enough information to determine whether the worker is handling the case properly, whether suggested improvements will be effective, and whether the worker carries out instructions or advice; (2) casework requires skillful exercise of independent judgment in complex decisions based on both general practice principles and detailed, often inherently ambiguous information about a specific case; and (3) the standardized reporting formats and inadequately operationalized universalistic decision-making criteria used in review systems do not provide a basis for valid evaluation of the management of individual cases. The New Jersey review system did not have discernible impact on the cases reviewed. Except for differences attributable to a modest age difference between the reviewed and nonreviewed samples, the case outcomes of the reviewed and nonreviewed children were virtually identical. Although case goals reported in case review conformed more closely to abstract child welfare values than earlier goals for the same recorded in the narrative case records, the review goals predicted outcomes slightly less well than did the earlier case goals. Caseworkers were generally neutral in their opinions about review, but some felt it had improved their planning while others had felt pressured to report unrealistic goals. Since case review did not affect outcomes it was relatively inexpensive. Sizable amounts of public funds for additional services and resources would have been required to move large numbers of children to more desirable situations.

Duration: July 1975-completed.

Cooperating group(s): Social and Rehabilitation Service; U. S. Department of Health, Education, and Welfare.

Publications: (1) *Foster care case review in New Jersey: An evaluation of its implementation and effects.* 1977 (280 pp.). (2) *Foster care case review: A critique of concept and method.* 1977 (17 pp.). (3) *Case reopening: An emergent issue in child welfare services.* 1976 (16 pp.). Available from: Social and Rehabilitation Service.

39-RE-4 SUPPLY AND DEMAND FOR CHILD FOSTER FAMILY CARE IN THE SOUTHEAST

Investigator(s): George Thomas, Ph.D., Project Director; Robert Bransford, M.S.W., Project Coordinator; and Shrikant Parchure, M.A., Data Analyst, Regional Institute of Social Welfare Research, Inc., 468 North Milledge Avenue, P.O. Box 152, Athens, Georgia 30603; and Leonard Pollane, Ed.D., Data Analyst, University of Georgia, Athens, Georgia 30602.

Purpose: To develop a feasible plan of action to close the gap between supply and demand for foster care; to assess the current supply of foster family homes in the Southeast United States (types, number, characteristics); to estimate the nature and extent of undetected and unmet needs for foster family care; and to identify program constraints to closing the gap between supply and demand.

Subjects: Data sources include (1) state foster care officials in the eight states of Region IV (U. S. Department of Health, Education, and Welfare); (2) a stratified sample of 64 county foster care programs, eight in each state (one metropolitan, two urban, five rural); and (3) 1,155 foster families and 2,010 foster children in the 64 counties.

Methods: Data were collected via personal interviews of state and county officials and via direct mail questionnaires to these sources and the 1,155 foster families. Foster parents reported the data for foster children. The Regional Institute of Social Welfare Research, Inc. developed the following questionnaires to be used in the projects: survey of state foster care programs, survey of county foster care programs, the foster parents' survey, and foster child information sheet.

Findings: Regarding supply: During the time of the study, 16,232 licensed foster family homes were serving 31,911 foster children in Region IV. The current supply of foster family care services throughout the region is highly traditional. The typical foster family home is a financially stable (exclusive of board payments), two-parent (working husband and housewife) household serving essentially nonproblematic foster children; i.e., children capable of out-of-home placement adjustments without special program supports. There is little evidence regionwide of program innovation in the direction of recruiting nontraditional types of foster homes. There are virtually no specialized foster family services regionwide for mentally and physically handicapped, delinquent, and/or abused children, and no organized programs to train foster parents to serve such children. No state in the region has a differentiated set of standards for licensing specialized foster family homes, a clear statement of the roles and responsibilities of foster parents, or a foster parent policy and procedure manual to guide foster parents in the conduct of their work. State influence upon program management is commonly limited to enforcement of minimum licensing standards and the payment of board rates. Counties exercise wide discretion in such matters as recruitment, training, the use of standard licensed homes for specialized purposes, and establishing criteria for case and program evaluation. Foster parents estimate that they provide over 50 percent of all supportive services (e.g., travel), 70 to 90 percent of all counseling/remedial services normally thought to be provided by various helping professions, and that they subsidize over 30 percent of the total cost of care out of pocket. Regarding demand: Projecting study data to 1970 census data, the study estimates that 75,097 children, or 6.8 per 1,000, are currently in need of some form of out-of-home noninstitutional placement. Among that number, current foster family care programs detect an estimated 34,369 children, or 3.7 per 1,000. In short, current programs are detecting an estimated 45.8 percent of total needs. Among detected children in need of foster family home placements, an estimated 7.1 percent, or 2,458 children, were not placed due to the unavailability of standard or specialized foster family homes. The total number of undetected children in need includes estimates of 20,428 children in low income families (AFDC-PA), 16,080 abused and neglected children in non-AFDC-PA homes, and 4,220 institutionalized children with special needs. Among children now in foster family care, an estimated 60.4 percent, or 19,293, could be better served in other types of placements, including (1) An estimated 32.2 percent of all children in care (N = 10,283) could benefit from a return to their own homes now. (2) An estimated 9.4 percent of all children in care (N = 3,000) could benefit from termination of parental rights/adoptions proceedings. (3) An estimated 14.7 percent (N = 4,691) of all children in care are placed out-of-home county due to a lack of local standard and/or specialized foster family homes. (4) An estimated 4.1 percent (N = 1,319) of all children now in local standard foster family homes are in need of specialized foster family homes. Additionally, an estimated 38.7 percent of all children in care (N = 12,350) have been in care at least 2 years, and 16.7 percent (N = 5,329) have been in care over 5 years. An undetermined number of these children could benefit from a sound program of permanent foster family care. Summary observations: Regionwide, current foster family care programs detect an estimated 45.8 percent of all children in need of out-of-home noninstitutionalized placements. Among detected children, 7.1 percent are not placed due to a lack of placement facilities. Among children currently placed, 60.4 percent could profit from some other type of placement arrangement. Assuming no change in such program features as funding, licensing, recruitment, and training, a 50 percent improvement in detection of unmet needs coupled with a 50 percent improvement in replacing children now in care to more appropriate environments would yield a doubled—perhaps tripled—deficiency in placement resources. In short, the number of children needing but not getting foster family care due to a lack of placement facilities would increase under these conditions from an estimated 2,458 to 7,014. This underscores the observation that increased efficiency in social service programs frequently produces an increase rather than a reduction in service demand and attendant costs. Improvements in present program detection/replacement efficiency, even at the unlikely magnitude of 50 percent levels, would not in themselves resolve the problem of unmet need for standard and specialized foster family homes. Program modification toward developing specialized foster family care programs, utilizing the existing foster family home supply, and built upon a base of increased program efficiency, would reduce overall unmet need by an estimated 10 to 20 percent and unmet need for specialized foster family care by up to 50 percent. The capacity to modify the existing supply of foster family homes to reduce unmet need is limited by the fact that slightly over 50 percent of current foster parents indicate they would not accept children with special needs or severe problems. Program expansion—and attendant high startup costs—would be required to reduce unmet need below the levels estimated to be achievable through program improvements and modification. Currently, the demand for foster family care services is dictated by supply; i.e., the number and types of children placed are determined by the number and types of homes available. Turning this equation around to make programs responsive to and reflective of demand seems most feasible by implementing a purposefully phased plan of program improvements, modification, and expansion in that order.

Duration: July 1975-completed.

Publications: *Supply and demand for child foster family care in the Southeast.* Athens, Georgia: Regional Institute of Social Welfare Research, Inc., 1977 (Research monograph).

39-RF-1 UNEMPLOYED DAY CARE RECIPIENTS

Investigator(s): Henrietta Barbour, B.A., Co-Director; and Gladys O'Neill, M.A., Co-Director, Welfare Research, Inc., 112 State Street, Albany, New York 12207.

Purpose: To provide a more comprehensive understanding of unemployed family heads who are users of day care services.

Subjects: 550 adults in New York City who receive publicly funded day care service. In-depth analysis was done on a subsample of 150 recipients.

Methods: This project focused on day care users in the most frequently indicated unemployed categories: (1) those who seek employment (for a period not to exceed 60 days), and (2) those who engage in vocational training. Information on day care recipients (parents), children and families was obtained both from the Agency for Child Development Resource Center and from interviews with a subsample. The stratified subsample was drawn from 20 day care centers with the highest frequencies of the population of interest.

Duration: March 1976-completed.

Publications: Information is available from the investigators.

39-RH-1 THE CHILD PROTECTORS

Investigator(s): Jacob G. Wiener, Ph.D., Administrative Supervisor, Office of Staff Development and Training, Special Services for Children, New York City Department of Social Services, 109 East 16th Street, Room 1111A, New York, New York 10003.
Purpose: To examine the effectiveness of child protective and court services related to achieving improved protection for abused and maltreated children.
Subjects: 175 families with children under age 16, who had been reported to the Central Registry for Child Abuse and Maltreatment by the Division of Special Services for Children, and subsequently were referred to the family court.
Methods: A random sampling was taken of cases from the records of the Child Welfare Information System and Office of Legal Affairs, Based on random interviews of child welfare staff and court personnel, and a critical reading of a pilot sample of 27 cases, a list of criteria for data collection was devised for use in the actual research.
Findings: Much confusion and unclarity exist related to individual and cooperative functioning of the child welfare agency and the family court.
Duration: February 1976-January 1978.
Cooperating group(s): New York City Human Resources Administration: Department of Social Services, Office of Staff Development and Training and Special Services for Children, Division of Research and Evaluation.
Publications: Information is available from the investigator.

39-RH-2 EVALUATION OF A JOINT OCD/SRS NATIONAL DEMONSTRATION PROGRAM IN CHILD ABUSE AND NEGLECT

Investigator(s): Anne Harris Cohn, D.P.H., Project Director and Associate; and Frederick C. Collignon, Ph.D., President, Berkeley Planning Associates, 2320 Channing Way, Berkeley, California 94704.
Purpose: To determine (1) the effectiveness and cost effectiveness of alternative service strategies to curb abusive/neglectful behavior and to treat abused/neglected children; (2) how well projects accomplish their goals; (3) the quality of services provided; and (4) the impact projects have on their community child abuse/neglect systems.
Subjects: Eleven projects serving over 2,000 families of mixed race/ethnicity and ages of children. (Children are generally under age 13.)
Methods: The project, divided into formative and summative evaluations, was composed of 10 components: program goal identification, project goal identification, process analysis, case management analysis, and cost analysis (formative evaluation components); assessment of program goal achievement, assessment of project goal achievement, community systems analysis, child-client impact, and adult-client impact (summative evaluation components). Data were collected on adults and children from the time they entered treatment programs through termination. Data included basic demographic information, data on amount and types of services received, data on problems in functioning that pertain to abuse/neglect, how these problems changed during treatment, and data on the incidence of abuse/neglect. Multivariate analyses were used to determine how different mixes of services, different kinds of clients, and changes in functioning are related. Detailed cost data were collected from projects quarterly to determine costs and unit costs of service. These were later combined with the effectiveness of service findings. Project activities and impacts were documented through interviews and record searches on quarterly site visits to assess success in accomplishing project goals. Key community agencies were interviewed, and quantitative data were collected at the time projects began

and at 1-month intervals to determine changes in the community system. These data were linked with project activities to determine project impacts on the system. Experts made 3-day site visits to projects where they reviewed a sample of records and interviewed workers to determine how well projects complied with generally accepted standards of quality case management. Data on quality were linked with the service effectiveness as well as to cost data.

Findings: Results cover costs of child abuse/neglect services, ability of projects to accomplish their goals, the impact of projects on their community systems, preliminary impacts of projects on their clients (both adults and children), and the quality of case management projects.

Duration: June 1974-October 1977.

Cooperating group(s): (1) Extended Family Center. (2) Health Resources Administration; Division of Health Services Research; U. S. Department of Health, Education, and Welfare.

Publications: (1) Cohn, Badge, and Collignon. Evaluating child abuse and neglect programs. *Children Today,* May 1975. (2) A list of publications is available from Berkeley Planning Associates.

39-RH-3 A DEMONSTRATION OF THE EFFECTIVENESS OF A NATIONAL TRAINING CURRICULUM FOR CHILD ABUSE AND NEGLECT FOR EDUCATION THROUGH LOCAL, METROPOLITAN, REGIONAL, AND NATIONALLY CONDUCTED ACTIVITIES

Investigator(s): Mary McCaffrey, Ed.D., Coordinator, Child Abuse and Neglect Project, Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091.

Purpose: To field test training materials on the identification, reporting, and treatment of child abuse and neglect; and to assist professionals in the coordination of training programs, location of community resources, and the development of school policies.

Subjects: Members of the professional community: teachers, administrators, counselors, nurses, social workers, and psychologists.

Methods: The project included the evaluation of four training models used with professionals to improve services for abused and neglected children: (1) policy oriented courses at the local level, (2) college or university programs, (3) national conferences for general audiences, and (4) conferences for administrators or policy makers. The project also included the evaluation of training materials, immediate and long-term.

Findings: Project design offers model programs, which not only improve services for abused and neglected children and their families, but also provide the mechanism for developing community programs and policy revision.

Duration: August 1976-August 1977.

Cooperating group(s): National Center for Child Abuse and Neglect; Office of Child Development; Office of Human Development; U. S. Department of Health, Education, and Welfare.

39-RH-4 HISTORICAL INVESTIGATION OF THE CHILD PROTECTION MOVEMENT

Investigator(s): Lela B. Costin, M.S.W., Professor, School of Social Work, University of Illinois, 1207 West Oregon Street, Urbana, Illinois 61801.

Purpose: To study the evolution of public social policy in relation to organized child protection in the United States and Great Britain; to discover the significant relationships among the facts and events in this movement which began in the late 19th century; to identify the immediate and underlying factors that caused child protection as a social service to develop as it did; and to evolve broad general principles that can be applied to recurring situations of child protection.

Methods: Archival materials of the early Societies for the Prevention of Cruelty to Children, early statutes, and early accounts of childhood are being reviewed. A historical method is being used to hypothesize, from a survey of these primary sources, relationships between facts and events that resulted in public social policy on child neglect and abuse. Authenticated historical documents are being studied in order to understand them in their own terms and in the light of their own times, and to delineate principles and establish relationships among events in child protection.

Duration: February 1977-February 1979.

Cooperating group(s): (1) University of Illinois, Research Board and Center for International Comparative Studies. (2) New York Society for the Prevention of Cruelty to Children. (3) Massachusetts Society for the Prevention of Cruelty to Children. (4) National Association for the Prevention of Cruelty to Children (England).

39-RH-5 CHILD ABUSE AND NEGLECT IN MILITARY FAMILIES

Investigator(s): Sandra M. Schnall, M.S.W., A.C.S.W., Research and Planning Specialist, Project Care, P.O. Box 66, Social Work Service, Brooke Army Medical Center, Fort Sam Houston, San Antonio, Texas 78234.

Purpose: To identify the reported rate, demography, case management, and disposition of child abuse and neglect in the military community.

Subjects: Military families suspected of abuse or neglect who were reported between October 1, 1976 and April 30, 1977 to either the local child protective services or one of the five local military installations.

Methods: Data collection included case record reviews, interviews with primary service deliverers, and attendance of multidisciplinary team meetings. A precoded data schedule facilitated the collection of data in a uniform manner.

Duration: September 1976-November 1977.

Cooperating group(s): (1) Texas State Department of Public Welfare. (2) Child advocacy officers of local military installations.

39-RH-6 FAMILY DYSFUNCTION IN CHILD ABUSE AND NEGLECT

Investigator(s): Elizabeth M. Timberlake, D.S.W., Assistant Professor, National Catholic School of Social Service, Catholic University of America, Washington, D.C. 20064.

Purpose: To examine parental role functioning within the context of the family system as associated with physical abuse and neglect of children.

Subjects: 96 families (served by a public social service agency), 50 of which were identified by the community as needing protective services.

Methods: Abusive behavior, parental role functioning, parental role identity development, parental role position pressures, and parental role coping strategies were studied using a correlational research design. An interview schedule was administered during home visits. Multivariate statistical analysis was utilized.

Duration: November 1974-January 1978.

Cooperating group(s): Pro-Child, Arlington County, Virginia Department of Human Resources.

39-RH-7 COPING PATTERNS OF THE PHYSICALLY ABUSED CHILD AND THE NEGLECTED CHILD IN FOSTER CARE

Investigator(s): Elizabeth M. Timberlake, D.S.W., Assistant Professor, National Catholic School of Social Service, Catholic University of America, Washington, D.C. 20064.

Purpose: To examine the interaction between child and social environment associated with (1) patterns of coping with early abuse and deprivation in parent-child relationships, and (2) patterns of coping with actual parent-child separation and loss; and specifically, to examine the hypothesis that a child victim of physical abuse develops a lifestyle of overt expression of aggression.

Subjects: 102 physically abused and emotionally neglected 6- and 7-year-old children in the foster homes of five public and voluntary agencies. There was a sexual and racial balance among the 56 children for whom physical abuse was medically documented prior to placement, among the 56 children for whom emotional abuse was the stated reason for placement, and between the two groups.

Methods: A correlational research design was used in the exploratory field study of the association among overt aggressive behavior (dependent variable), stability of foster home placement, performance in school, and manifestations of depression. Interrater reliability of +.89 between foster mother and social worker suggested high agreement on observed behavior. Factor analysis of the 20-item Childhood Social Functioning Inventory yielded a first factor cluster of nine items with overt aggressive behavior content.

Findings: Fifty percent of the abused children, in contrast to 31 percent of the neglected children, had been labeled unmanageable and placed in a second foster home. A multiple stepwise regression analysis of the association among overt aggressive behaviors, learned aggressive patterns of coping, depressive process, and social situation (school performance, foster home replacement) obtained a Multiple R of .51 ($p < .05$). Inspection of the two social situations suggested that exposure to the positive feelings of a parental figure (teacher, foster parent) brought to the foster child's consciousness (1) a positive desire for lost nurturance and affection, (2) negative feelings about past parent-child experiences which promoted a negative self-image, and (3) an aggressive style of relating to adults which was learned from parental violence and neglect. That is, the abused child tended to externalize aggression while the neglected child was more likely to internalize aggression. The inference is that in social situations which stimulate concomitant recognition of aggressive impulse and depressive process, a child resorts to earlier learned patterns of coping with aggression.

Duration: July 1974-continuing.

Publications: A paper presented at the Symposium on Child Abuse and Delinquency, Seattle, Washington, July 1977.

39-RH-8 NATIONAL STUDY ON OFFICIAL CHILD NEGLECT AND ABUSE REPORTING

Investigator(s): J. Robert Lebsack, Ph.D., Associate Director, National Study on Official Child Neglect and Abuse Reporting, Children's Division, American Humane Association, P.O. Box 1319, Denver, Colorado 80201.

Purpose: To assess the national experience with child neglect and abuse.

Subjects: Individuals reported through official state channels as being victims, perpetrators, or family members in child neglect and abuse cases.

Methods: Data were gathered from cooperating state social services agencies. A standard reporting form was completed for each case reported. In-depth, more detailed data came from states actively participating in the study including, in 1974, twenty states, Guam, Puerto Rico, and the Virgin Islands. These data were more or less uniform in content and detail. Other data were supplied by 29 states. This information came in cumulative, less detailed form, lacking the uniformity in structure and form of the more specific data. By the end of 1975, 29 states and territories were incorporated into the National Study, and data from nonparticipating states were furnished in cumulative form. Forms were processed at the American Humane Association where annual tabular summaries were prepared. Data for 1974, 1975, and 1976 were analyzed.

Findings: Results of the 1975 national data indicate that 294,796 cases of neglect and abuse were reported. A near 2:1 ratio of neglect over abuse reporting is biased to show a lower than true ratio because (1) seven states reported only abuse cases; (2) no state reported neglect only; (3) all reporting laws made reporting of abuse mandatory—not all make neglect reporting mandatory; and (4) 11 states reported abuse and neglect together, with no differentiation. A total of 307,778 children were reported as being involved in reported cases during the year. There was no significant difference between the sexes of the children involved. Abusers-neglecters were natural parents (82.47 percent), step-parents (5.31 percent), adoptive parents (.25 percent), other relatives (3.49 percent), and baby-sitters (.49 percent).

Duration: August 1973-December 1977.

Cooperating group(s): Office of Child Development; Office of Human Development; U.S. Department of Health, Education, and Welfare.

Publications: Information is available from the investigator.

39-RH-9 ATTACHMENT BEHAVIORS IN ABUSED CHILDREN DURING BRIEF SEPARATION FROM MOTHERS

Investigator(s): Elaine Ortman, M.S., Clinical Specialist, College of Nursing, University of Utah, Salt Lake City, Utah 84112. Address correspondence to: 2858 East 2880 South, Salt Lake City, Utah 84109.

Purpose: To study the differences in attachment behaviors manifested by abused and nonabused children during 3-minute separation from and reunion with their mothers as compared to similar separation from and reunion with a habituated nonfamiliar figure.

Subjects: 21 mother-infant dyads: infants are ages 9 to 23 months; 14 were abused, 7 were nonabused.

Methods: A quasi-experimental two-group design was used in which treatment variables were introduced and observations were made via videotapes regarding the differences between groups. Each group was subjected to the same procedures. Primary treatment variables were separation from and reunion with both mother and a habituated nonfamiliar adult. A modified Ainsworth (1972) paradigm was used to rate behaviors observed. Videotapes were rated at 30-second intervals by two different raters in a double blind situation. The percent of time was measured in which the criterion variables occurred. Criterion variables measured included exploration from familiar base, distress, head turning, following, crying with separation, soothing, positive greeting, differential vocalization, and locomotion. The data were analyzed using the statistical package for the social sciences. T-test, chi-square contingency tables, one-way analysis of variance (ANOVA), and Pearson product moment correlation coefficients were computed.

Findings: There is a significant difference in attachment behaviors manifested by children studied in the two groups. Lack of attachment behaviors in abuse cases appears consistent with Ainsworth's *nonattached group*.

Duration: September 1975-June 1977.

Cooperating group(s): University of Utah, Medical Center.

HEALTH SERVICES

39-SA-1 MINOR ILLNESS PATTERNS IN DAY CARE

Investigator(s): Hope Solomons, Ed.D., Associate Professor; and Jean Lakin, R.N., M.P.H., Associate Professor, College of Nursing; and Margaret Weiser, Ed.D., Associate Professor; and Bill Snider, Ph.D., Associate Professor, College of Education, University of Iowa, Iowa City, Iowa 52242.
Purpose: To determine the illness patterns of adults and children involved in a day care center and the seasonal variations in those patterns.
Subjects: 84 children, ages 2 months to 5 years, both sexes, who attend all-day or half-day programs at the Early Childhood Education Center of the University of Iowa College of Education.
Methods: Data are being collected by (1) daily observation of children recorded on the Minor Illness Inventory, (2) daily self-reporting by staff members, (3) existing health records, and (4) parents' statements. The Minor Illness Inventory was developed at the University of Iowa by Lakin, Anselmo, and Solomons. Validity of the instrument needs further checking. Data will be analyzed statistically.
Duration: February 1977-May 1978.

39-SA-2 DEVELOPMENT OF A POPULATION BASED CHILD HEALTH PROFILE

Investigator(s): Jack Elinson, Ph.D., Professor, School of Public Health, Division of Sociomedical Sciences, Columbia University, 600 West 168th Street, New York, New York 10032.
Purpose: To design and develop the Child Health Profile which will be used to measure the health status of children from birth through early adolescence.
Methods: A 20-minute telephone questionnaire was developed and administered to the caretakers of children, ages 6 to 11. Questions dealt with the health status and health behavior of the children. The questionnaire was pilot tested in Los Angeles in September 1977. The Child Health Profile will consist of selected measures already being used in various studies, as well as recommendations for needed research in areas where there are no suitable measures.
Duration: December 1975-January 1978.
Cooperating group(s): Foundation for Child Development.

39-SD-1 SUDDEN INFANT DEATH SYNDROME

Investigator(s): Richard L. Naeye, Ph.D., Chairman, Department of Pathology, College of Medicine, Pennsylvania State University, Hershey, Pennsylvania 17033.
Purpose: To determine the causes of the sudden infant death syndrome.
Subjects: 300 infants under age 1, both sexes, all victims of the sudden infant death syndrome.

Methods: Data were collected from neurotransmitters placed in the central nervous system and carotid body, and from an investigation of specific events in gestation that might have damaged the fetal brain and predisposed the infant to sudden infant death syndrome.
Duration: 1973-1985.
Cooperating group(s): Chief Medical Examiner, State of Maryland.

39-SD-2 HEALTH INSTITUTIONS AND THE CHILD

Investigator(s): Lynne Morgan, B.S., Project Director; and Kent Gummerman, Ph.D., Child Health Specialist, Special Projects Bureau, Texas Department of Public Welfare, John H. Reagan Building, Austin, Texas 78701.
Purpose: To experimentally evaluate a method of delivering health care information and assistance to primiparous mothers during their infant's first year.
Subjects: Approximately 150 mothers, age 16 and over; and their infants. The subjects are primarily from low income families and were first contacted in a local public hospital soon after the infant's birth.
Methods: Subjects are placed into either an experimental or a control group. Caseworkers actively help families in the experimental group negotiate the health care system and encourage proper health care for the infants. All families are evaluated with respect to the infant's developmental status, parental attitudes, parent-infant interaction patterns, and health care actions taken by the parents for their infants.
Duration: July 1976-June 1978.
Cooperating group(s): Office of Child Development; Office of Human Development; U.S. Department of Health, Education, and Welfare.
Publications: A final report will be presented to the Office of Child Development.

39-SD-3 PROJECT CARE

Investigator(s): Sarah L. Benet, A.B., Project Director; and Harold Goldmeier, Ed.D., Project Consultant, Massachusetts Committee for Children and Youth, 14 Beacon Street, #706, Boston, Massachusetts 02108.
Purpose: To initiate an innovative program for drug/alcohol dependent pregnant women which includes publication of an annotated bibliography of the literature regarding pre- and postnatal effects, a service directory of Massachusetts agencies serving these women, and three training films for use by health care professionals.
Subjects: Drug/alcohol dependent pregnant women and health care professionals who provide services to these women and their infants.
Methods: During the first stage of the project the staff prepared a bibliography, service directory, and training films. This was followed by workshops for health care professionals to sensitize them to the social, medical, and economic pathology of the pregnant subjects.
Findings: There is great fragmentation of services where they exist at all. There are virtually no films that are adequate for workshops or that adequately deal with symptoms and treatment of drug/alcohol dependent pregnant women.
Duration: May 1976-May 1977.
Publications: The Massachusetts Committee for Children and Youth will publish findings and will disseminate the bibliography, films, and training program.

39-SD-4 SERVICES AND NEEDS OF TEEN-AGE PREGNANT GIRLS IN THE LARGE CITIES OF THE UNITED STATES—1976

Investigator(s): Hyman Goldstein, Ph.D., Research Biostatistician; and Helen M. Wallace, M.D., M.P.H., Professor and Chairman, Maternal and Child Health Program, School of Public Health, University of California, Berkeley, California 94720.
Purpose: To determine the services to and needs of pregnant teen-age girls in the large cities of the United States during 1976; and to compare these findings with those of a similar survey conducted in 1970.
Subjects: Departments of Health and Education in 125 large cities of the United States.
Methods: A mail survey was conducted of cities that had a census population of 100,000 or over in 1970. The questionnaire covered topics including (1) the 1974 estimated female population under 20 years old, the number in this age group delivering live births, and the number by color cared for in special programs for teen-age pregnant girls; (2) the total cost, sources of funds, and services provided by special programs; and (3) details regarding medical care, contraception, abortion services, special education, social services, special nutrition, and longitudinal follow-up services available to mother and infant, and special problems and unmet needs.
Findings: Comparing 1970 and 1976 data reveals that while progress has been made, serious unmet needs of mothers and infants still remain. They are most frequently social and health services, health education for the mother, and similar needs and day care for the infant.
Duration: April 1976-December 1976.

39-SD-5 ADOLESCENT HOMICIDE

Investigator(s): Linda Carson, M.S.N.; Kenneth S. Solway, Ph.D.; and J. Ray Hays, Ph.D., Texas Research Institute of Mental Sciences, 1300 Moursund, Houston, Texas 77030.
Purpose: To determine possible common characteristics among adolescents committing homicide.
Subjects: Girls and boys, ages 12 to 17, who were in the juvenile justice system.
Methods: Data were collected from psychological tests administered to the subjects during required testing sessions. Instruments used in the testing sessions included: Interpersonal Checklist; Minnesota Multiphasic Personality Inventory; Wechsler Intelligence Scale for Children, Wechsler Intelligence Scale for Children-R, or the Wechsler Adult Intelligence Scale; Draw-A-Person; the Rorschach; and the Thematic Apperception Test. Analysis of variance was used to analyze the data.
Duration: October 1976-July 1977.
Cooperating group(s): Harris County Juvenile Probation Department.

39-SE-1 ASSESSMENT OF CONTRACEPTION USE BY TEEN-AGERS

Investigator(s): Virginia K. Ktsanes, M.A., Assistant Professor, Department of Health Measurement Sciences, School of Public Health and Tropical Medicine, Tulane University, 1430 Tulane Avenue, New Orleans, Louisiana 70112.
Purpose: To obtain, from teen-agers using contraception methods, in-depth information relevant to factors associated with their decision to use contraception, including persons with whom the decision was shared.

170

Subjects: 116 girls, ages 12 to 18, enrolled in the Louisiana Family Planning Program. The girls' average age at the start of the program was 15.7 years, the average program time was 11.7 months. Eighty-five percent of the girls were black; 85 percent, single; and 61 percent had never been pregnant.

Methods: Using a semistructured questionnaire, teen counselors in seven clinics interviewed subject patients at a revisit in summer 1976. Only 38 percent of the eligible subjects kept appointments. Respondents, therefore, probably represent the teen-agers more effectively using contraception. Response frequency on each questionnaire item and some direct quotations were recorded. Reliability checks on method usage responses were done.

Findings: Fifty-six percent of the black girls and 22 percent of the white girls reported they were not sexually active at the first visit. Sixty percent had discussed the decision to use contraception with a family member. Mothers of 91 percent and fathers of 51 percent of the girls knew they were using some form of contraception. Eighty-eight percent of the girls reported favorable family reaction.

Duration: July 1976-January 1977.

Cooperating group(s): (1) Behavioral Sciences Branch; Center for Population Research; National Institute of Child Health and Human Development; National Institutes of Health; Public Health Service, U.S. Department of Health, Education, and Welfare. (2) Louisiana Family Planning Program.

39-SE-2 FAMILY PLANNING SERVICES FOR ADOLESCENTS: UNITED STATES, EACH STATE AND COUNTY, 1975

Investigator(s): Toni Heisler, Planning Associate; and Julia Boone, Planning Assistant, Alan Guttmacher Institute, 515 Madison Avenue, New York, New York 10022.

Purpose: To provide statistical documentation for an expanded family planning delivery system capable of serving all adolescents at risk of unwanted pregnancies.

Subjects: Family planning agencies throughout the United States.

Methods: Analyses were made of the types and locations of over 3,100 agencies participating in the provision of family planning services to adolescents. Data were obtained through a federal reporting system for family planning agencies and through surveys of agencies not participating in the government reporting system. The data included the minimum number of adolescents at risk of unwanted pregnancies on a county/state/national level, the number who have received family planning services from organized programs, and those remaining without services.

Findings: Of the estimated four million sexually active female adolescents in need of family planning services, only 1,170,000 received services in 1975; seventy-two percent (2,900,000) remained without access to organized family planning services. An unknown number of those at risk utilize private physicians for contraceptive services.

Duration: Fall 1976-Fall 1977.

Cooperating group(s): Kellogg Foundation, Battle Creek, Michigan.

Publications: *Family planning services for adolescents: United States, each state and county, 1975*. New York, New York: Alan Guttmacher Institute, 1977.

39-SH-1 SOURCES OF LEAD IN CHILDREN

Investigator(s): Paul B. Hammond, D.V.M., Ph.D., Professor; C. S. Clark, Ph.D., Associate Professor; L. W. Michael, Ph.D., Associate Professor, Department of Environmental Health; and O. Berger, M.D., Associate Professor, Department of Pediatrics, College of Medicine, University of Cincinnati, Cincinnati, Ohio 45267.

Purpose: To determine the relationship between environmental sources of lead in inner city children and their blood level concentrations of lead.

Subjects: 45 children, ages 1 to 5, recruited from the inner city area of Cincinnati. Identification of subjects was made through examination of the city lead screening program blood level data.

Methods: The homes of the children were evaluated for lead hazard on the basis of presence of lead-base paint, condition of painted surfaces, and concentration of lead in interior and exterior dust and in soil. In selected cases, total daily stool collections were made for up to 22 days and analyzed for total lead content.

Findings: All but one of the children in the study had blood lead levels greater than or equal to 50 μg/dl. All subjects were found to live in housing classified by this investigation as highly hazardous on the basis of lead-base paint availability. Fecal lead excretion from day-to-day was extremely variable. Grossly elevated fecal lead excretion occurred only occasionally.

Duration: May 1974-June 1977.

Cooperating group(s): (1) National Science Foundation. (2) Cincinnati Health Department.

INSTITUTION INDEX

Adelphi University, Garden City, New York. Psychology Department. 39-FE-4
American Humane Association, Denver, Colorado. Children's Division. 39-RH-8
American Printing House for the Blind, Louisville, Kentucky. 39-GE-1
Arizona Community Development for Abuse and Neglect, Phoenix. 39-KJ-1
Arizona State University, Tempe. Department of Psychology. 39-KJ-1
Australian Council for Educational Research, Hawthorn, Victoria, Australia. 39-NB-2

Beaver College, Glenside, Pennsylvania. Department of Education. 39-DB-9
Bell Laboratories, Murray Hill, New Jersey. 39-CA-1, 39-DB-13
Berea College, Berea, Kentucky. Department of Psychology. 39-OA-5
Berkeley Planning Associates, Berkeley, California. 39-RH-2
Biological Sciences Curriculum Study, Boulder, Colorado. 39-OA-7
Blissymbolics Communication Foundation, Toronto, Ontario, Canada. 39-GE-14
Brandeis University, Waltham, Massachusetts. Department of Psychology. 39-DB-3
Briarcliff Public Schools, Briarcliff Manor, New York. Pupil Personnel Services. 39-IA-4

California State College, Dominguez Hills. Department of Psychology. 39-PB-1
California State Department of Corrections, Los Angeles. Parole Outpatient Clinic. 39-KS-1
California State University, Long Beach. Department of Early Childhood Education. 39-NB-1
California State University, Los Angeles. Department of Special Education. 39-QH-2
California University, Berkeley. Institute of Human Development. 39-AA-4
California University, Berkeley. School of Public Health. 39-AA-3, 39-SD-4
California University, Davis. Department of Applied Behavioral Science. 39-LA-8
California University, Davis. Department of Psychology. 39-DB-4
California University, LaJolla. Department of Psychology. 39-DB-14
California University, Los Angeles. Department of Education. 39-HG-2
California University, Los Angeles. Department of Kinesiology. 39-CG-3
California University, Los Angeles. Department of Psychiatry. 39-JE-2
California University, Los Angeles. Department of Psychology. 39-PB-4
California University, Los Angeles. Graduate School of Education; Marion Davies Children's Clinic. 39-QF-1
California University, Los Angeles. Neuropsychiatric Institute, Department of Psychiatry. 39-GE-9
California University, Los Angeles. School of Medicine, Division of Pediatric Neurology, Department of Pediatrics. 39-JH-6
California University, San Francisco. Medical Center, Langley Porter Neuropsychiatric Institute. 39-JE-7, 39-JE-8
California University, Santa Barbara. Department of Education. 39-OG-4
Calvin College, Grand Rapids, Michigan. Department of Education. 39-OE-1
Case Western Reserve University, Cleveland, Ohio. School of Medicine. 39-AA-7
Catholic University, Washington, D.C. Boys Town Center for the Study of Youth Development. 39-NC-1
Catholic University, Washington, D.C. Department of Psychology. 39-LA-3
Catholic University, Washington, D.C. National Catholic School of of Social Service. 39-RH-6, 39-RH-7
Cedars-Sinai Medical Center, Los Angeles, California. Thalians Community Mental Health Center. 39-LA-2
Central Wisconsin Center for the Developmentally Disabled, Madison. 39-HC-1

Chicago University, Illinois. National Opinion Research Center. 39-LA-7
Children's Hospital Medical Center, Boston, Massachusetts. Child Development Unit. 39-FA-5
Children's Hospital of Eastern Ontario, Ottawa, Ontario, Canada. Department of Psychology. 39-LF-2
Children's Hospital of Newark, New Jersey. Child Development Center. 39-HC-3
Children's Memorial Hospital, Chicago, Illinois. 39-GC-3
Children's Orthopedic Hospital, Seattle, Washington. Department of Hematology/Oncology. 39-GE-4
Cincinnati University, Ohio. College of Medicine, Department of Environmental Health; Department of Pediatrics. 39-SH-1
Clark College, Atlanta, Georgia. Department of Early Childhood Education. 39-NG-3
Clark College, Atlanta, Georgia. Department of Education. 39-NG-1
Cleveland State University, Ohio. 39-OA-6
Colorado University, Boulder. Institute for Behavioral Genetics. 39-DB-2
Columbia University, New York, New York. School of Public Health, Division of Sociomedical Sciences. 39-SA-2
Connecticut University, Storrs. Department of Anthropology. 39-LA-4
Connecticut University, Storrs. Department of Psychology. 39-PB-2
Cornell University, Ithaca, New York. College of Human Ecology, Department of Community Service Education. 39-OF-1, 39-QE-1
Council for Exceptional Children, Reston, Virginia. Child Abuse and Neglect Project. 39-RH-3
Creative Technological Aids, Inc., Brighton, Massachusetts. 39-GE-3
Curative Workshop of Milwaukee, Wisconsin. Demmer-Kiwanis Children's Division. 39-GE-15

Delaware University, Newark. Department of Family Studies. 39-LA-5
Denver University, Colorado. Department of Special Education. 39-IA-6
Diocese of Toledo, Ohio. 39-EB-5
Division of Youth and Family Services, Trenton, New Jersey. Bureau of Research, Planning, and Program Development. 39-RE-3

Eastern Illinois University, Charleston. Department of Psychology. 39-DH-5
Eastern Michigan University, Ypsilanti. Department of Psychology. 39-DE-2
Educational Testing Service, Princeton, New Jersey. 39-LC-2
Education Commission of the States, Denver, Colorado. 39-AA-10, 39-OF-1

Fels Research Institute for the Study of Human Development, Yellow Springs, Ohio. 39-AA-1
Florida State University, Tallahassee. School of Social Work. 39-EF-3
Florida University, Gainesville. College of Education, P. K. Yonge Laboratory School. 39-FA-6
Florida University, Gainesville. Department of Psychology. 39-EB-6
Fort Sam Houston, San Antonio, Texas. Brooke Army Medical Center, Social Work Service. 39-RH-5

Georgia University, Athens. College of Education. 39-GC-5
Georgia University, Athens. Department of Science Education. 39-PC-1
Georgia University, Athens. Institute of Behavioral Research. 39-PA-2
Good Samaritan Hospital, Portland, Oregon. Neuroscience Institute, Epilepsy Center of Oregon. 39-GA-1
Greater Kansas City Mental Health Foundation, Missouri. 39-LC-1
Greer School, Millbrook, New York. Hope Farm. 39-DF-2
Guelph University, Guelph, Ontario, Canada. Department of Family and Consumer Studies. 39-LA-8
Alan Guttmacher Institute, New York, New York. 39-SE-2

Harvard University, Boston, Massachusetts. Medical School, Children's Hospital Medical Center. 39-CC-4
Harvard University, Boston, Massachusetts. Medical School, Department of Pediatrics. 39-GE-5
Harvard University, Cambridge, Massachusetts. Department of Anthropology. 39-DB-13
Harvard University, Cambridge, Massachusetts. Graduate School of Education, Laboratory of Human Development. 39-AA-15, 39-CA-1
High/Scope Educational Research Foundation, Ypsilanti, Michigan. 39-GF-3
Holy Apostles Center, New York, New York. Prisoner Release Program. 39-OA-12
Hospital for Sick Children, Toronto, Ontario, Canada. 39-LA-6
Hospital for Sick Children, Toronto, Ontario, Canada. Psychology Department. 39-DB-7
Houston University, Texas. College of Education. 39-PA-1
Houston University, Texas. Department of Early Childhood Education. 39-MB-2
Howard University, Washington, D.C. Center for the Study of Handicapped Children and Youth. 39-DH-3
Howard University, Washington, D.C. Department of Social Work. 39-DC-10
Hull University, Hull, England. Department of Psychology. 39-HH-1

Illinois Children's Home and Aid Society, Chicago. Social Services. 39-LF-1, 39-RE-1
Illinois University, Chicago. Medical Center, Center for Craniofacial Anomalies. 39-AA-9
Illinois University, Urbana-Champaign. Institute for Child Behavior and Development, Department of Special Education. 39-GE-16, 39-OE-1
Illinois University, Urbana-Champaign. Institute of Communications Research. 39-RD-1
Illinois University, Urbana-Champaign. School of Social Work. 39-RH-4
Indiana State University, Terre Haute. Department of Elementary Education. 39-DB-6
Indiana University, Bloomington. School of Optometry. 39-CC-2
Institute for Child Behavior Research, San Diego, California. 39-JE-6
Institute for Research in Human Growth, Claremont, California. 39-HH-2
InterAmerica Research Associates, Inc., Washington, D.C. 39-ND-1
Iowa University, Iowa City. College of Nursing; College of Education. 39-SA-1
Iowa University, Iowa City. Psychology Department. 39-JC-2

Jewish Board of Guardians, New York, New York. 39-KR-1
Jewish General Hospital, Montreal, Quebec, Canada. Department of Psychiatry. 39-OF-2
Johns Hopkins University, Baltimore, Maryland. Center for Social Organization of Schools. 39-DB-12
Johns Hopkins University, Baltimore, Maryland. Department of Psychology. 39-IA-5
Johns Hopkins University, Baltimore, Maryland. John F. Kennedy Institute. 39-CC-3

Kaiser Foundation Hospital, Oakland, California. Department of Pediatrics; Department of Obstetrics and Gynecology. 39-AA-3
Kansas University, Lawrence. Department of Speech Pathology and Audiology. 39-DH-6
Kansas University, Parsons. Bureau of Child Research. 39-HJ-1
Kent County Council, Kent, England. 39-AA-18
Kent State University, Kent, Ohio. Department of Psychology. 39-DB-10
Kentucky University, Lexington. College of Education, Department of Educational Psychology. 39-OF-3
Kentucky University, Lexington. College of Nursing. 39-LG-3

Lafayette Clinic, Detroit, Michigan. 39-CG-4
London School of Economics and Political Science, London, England. Survey Research Centre. 39-FE-5
London University, England. Institute of Education, Thomas Coram Research Unit. 39-OJ-1
Louisiana State University, Baton Rouge. Home Economics Department. 39-OH-1

Louisiana State University, New Orleans. Medical Center. 39-GC-1
Luzerne-Wyoming County Mental Health Center #1, Wilkes-Barre, Pennsylvania. Children's Service Center. 39-JH-1

Maine University, Orono. Department of Psychology. 39-DC-3
Maine University, Orono. School of Human Development; Department of Education. 39-EB-2
Malmö School of Education, Malmö, Sweden. Department of Education. 39-FB-1
Manitoba University, Winnipeg, Manitoba, Canada. Faculty of Education, Department of Educational Psychology. 39-OG-3
Mankato State University, Mankato, Minnesota. Department of Education. 39-OA-6
Maryland University, Baltimore. School of Social Work. 39-RD-1
Maryland University, College Park. College of Education, Department of Early Childhood/Elementary Education. 39-EB-4, 39-FA-7, 39-OA-4
Maryland University, College Park. College of Education, Institute for Child Study. 39-FA-2
Maryland University, College Park. Department of Psychology. 39-DC-4, 39-DC-8
Massachusetts Committee for Children and Youth, Boston. 39-SD-3
Massachusetts Institute of Technology, Cambridge. Biomedical Engineering. 39-GE-3
Massachusetts Institute of Technology, Cambridge. Department of Mechanical Engineering. 39-GE-5
Massachusetts Institute of Technology, Cambridge. Research Laboratory of Electronics; Speech Communication Group. 39-AA-14
Massachusetts University, Amherst. Department of Psychology. 39-DB-8
Max-Planck-Institute for Psychiatry, Munich, Germany. 39-FA-1
Medical Research Council, London, England. Developmental Psychology Unit. 39-GC-2
Memphis State University, Tennessee. College of Education. 39-OA-9
Michigan State University, East Lansing. Department of Communications. 39-FE-1
Michigan State University, East Lansing. Department of Psychology. 39-MA-1
Michigan University, Ann Arbor. Institute for Social Research. 39-AA-20
Middle School Research Center, Indianapolis, Indiana. 39-OA-6
Minneapolis Children's Health Center, Inc., Minnesota. 39-LG-1
Minnesota University, Minneapolis. Department of Communication Disorders. 39-DH-4
Minnesota University, Minneapolis. Minnesota Center for Social Research. 39-OA-8
Mississippi University, University, Mississippi. Department of Psychology. 39-FD-1
Missouri University, St. Louis. Graduate School; Office of Research. 39-AA-21
Mohawk Valley Community College, Utica, New York. Department of Psychology. 39-EC-3
Montana University, Missoula. Department of Psychology. 39-JC-3
Mary Moody Northern Center for Early Childhood Education, Galveston, Texas. 39-DB-1

Nairobi University, Nairobi, Kenya. 39-CA-1
National Center for Health Statistics (DHEW), Washington, D.C. 39-AA-7
National Foundation for Educational Research in England and Wales, Slough, Berkshire, England. 39-OA-2, 39-OA-3
National Institute of Child Health and Human Development (DHEW), Bethesda, Maryland. 39-AA-7
National Institute of Mental Health (DHEW), Bethesda, Maryland. Adult Psychiatry Branch, Section on Twin and Sibling Studies. 39-AA-12
National Institute of Mental Health (DHEW), Bethesda, Maryland. Laboratory of Developmental Psychology. 39-GC-4, 39-JA-1
National Institute of Neurological and Communicative Disorders and Stroke (DHEW), Bethesda, Maryland. 39-AA-11

New Hampshire University, Durham. Department of Sociology. 39-LA-5
New Mexico University, Albuquerque. College of Education. 39-NB-3
New Mexico University, Albuquerque. Department of Psychology. 39-EA-2
New Orleans University, Louisiana. Department of Psychology. 39-JE-3
New York City Department of Social Services, New York. Office of Staff Development and Training, Special Services for Children. 39-RH-1
New York City University, New York. Brooklyn College, School of Education. 39-IA-1
New York City University, New York. City College, Department of Asian Studies. 39-NG-2
New York City University, New York. Hunter College. 39-IA-1
New York City University, New York. Hunter College, Department of Psychology. 39-LG-2
New York Public Library, New York. 39-OA-12
New York State University, Albany. Department of Psychology. 39-EC-2
New York State University, Albany. Educational Research and Service Center. 39-DD-1, 39-DD-2
New York State University, Brooklyn. Downstate Medical Center, Department of Pediatrics. 39-EA-4
New York State University College, Buffalo. Department of Exceptional Children Education. 39-HA-1
New York State University College, Oneonta. Department of Education. 39-OA-1, 39-OA-10
New York State University, Oswego. Department of Psychology. 39-EC-3
New York University, New York. Medical Center. 39-LG-2
New York University, New York. Medical Center, Children's Psychopharmacology Unit. 39-JE-4, 39-JH-2, 39-JH-3
New York University, New York. Medical Center, Institute of Rehabilitation Medicine. 39-GE-6
New York University, New York. School of Social Work. 39-RE-2
North Carolina University, Greensboro. College of Education. 39-FA-6
Northern Illinois University, DeKalb. Department of Sociology. 39-KR-2
Northwest Missouri State University, Maryville. Guidance/Psychology Department. 39-DC-5, 39-DC-6
Northwestern University, Chicago, Illinois. Medical School, Division of Neurological Surgery. 39-GC-3
Northwestern University, Evanston, Illinois. Department of Linguistics; Department of Education. 39-DF-1
Nova University, Ft. Lauderdale, Florida. Department of Early Childhood Education. 39-OE-2

Ohio State University, Columbus. Department of Anatomy. 39-CG-2, 39-GE-7, 39-JE-1
Ohio State University, Columbus. Department of Anatomy; Department of Psychiatry. 39-JC-1
Ohio State University, Columbus. Department of Psychology and Pediatrics. 39-JH-5
Ohio State University, Columbus. Nisonger Center. 39-HC-2
Ohio State University, Marion. Department of Psychology. 39-DC-9
Ohio University, Athens. Linguistics Department. 39-DH-7
Oklahoma State University, Stillwater. Department of Psychology. 39-DB-11
Old Dominion University, Norfolk, Virginia. School of Education. 39-OB-1
Ontario Crippled Children's Center, Toronto, Ontario, Canada. 39-GE-14
Ontario Institute for Studies in Education, Toronto, Ontario, Canada. 39-GE-14
Oregon University, Eugene. Center on Human Development. 39-HG-1
Oregon University, Portland. Health Sciences Center, School of Dentistry, Child Study Clinic. 39-AA-6

Pacific Oaks College, Pasadena, California. Children's School. 39-OG-1
George Peabody College for Teachers, Nashville, Tennessee. John F. Kennedy Center. 39-JG-1

Pennridge School District, Perkasie, Pennsylvania. 39-PB-3
Pennsylvania State Department of Public Welfare, Harrisburg. Bureau of Child Development. 39-MB-4
Pennsylvania State University, Hershey. College of Medicine, Department of Pathology. 39-SD-1
Pennsylvania University, Philadelphia. Graduate School of Education. 39-OH-2, 39-PB-3
Portland State University, Oregon. Department of Psychology. 39-GA-1
Providence Education Department, Providence, Rhode Island. 39-OA-12

Redwood High School, Larkspur, California. 39-OG-2
Regional Institute of Social Welfare Research, Inc., Athens, Georgia. 39-RE-4
Reiss-Davis Child Study Center, Los Angeles, California. 39-AA-17
Rhode Island University, Kingston. Department of Sociology. 39-LA-5
Rochester University, New York. Department of Psychology. 39-EF-1
Rochester University, New York. Primary Mental Health Project. 39-AA-13
Rockefeller University, New York, New York. Rockefeller University Hospital. 39-CF-1
Rothschild Municipal-Government Hospital, Haifa, Israel. 39-EF-2
Royal Berkshire Hospital, Reading, Berkshire, England. Audiology Research Unit. 39-GB-1
Russell Sage College, Troy, New York. Department of Psychology. 39-FA-9

St. Cloud State University, Minnesota. Department of Psychology. 39-EA-3
St. Thomas's Hospital, London, England. School of Medicine, Department of Clinical Epidemiology and Social Medicine. 39-AA-18
San Francisco General Hospital, California. Well Baby Clinic. 39-EA-5
San Francisco Unified School District, California. Integration Department. 39-OK-1
Sheffield University, Sheffield, United Kingdom. Department of Psychology. 39-CG-1
South Dakota University, Vermillion. Department of Psychology. 39-FE-2
Southeast Louisiana Hospital, Mandeville. Child Development Center. 39-JH-4
Southeast Mental Health and Retardation Center, Fargo, North Dakota. Infant and Young Children's Department. 39-QH-1
Southern California University, Los Angeles. Department of Psychology. 39-DB-15, 39-NA-1
Southern California University, Los Angeles. School of Medicine, Children's Cancer Study Group. 39-AA-22
Southern Methodist University, Dallas, Texas. Department of Psychology. 39-DC-2, 39-EC-1
South Florida University, Tampa. College of Education. 39-GE-8
Stanford University, Stanford, California. Center for Educational Research at Stanford. 39-CB-1
Stanford University, Stanford, California. Department of Psychology. 39-GE-17
Stanford University, Stanford, California. Department of Sociology. 39-FA-8
Strathclyde University, Glasgow, Scotland. Department of Psychology. 39-DB-16
Swansea University College, Swansea, Wales, United Kingdom. Department of Education. 39-GE-2
Sydney University, Sydney, New South Wales, Australia. Department of Education. 39-EB-1
Synanon Foundation, Inc., Marshall, California. Synanon Research Institute. 39-DB-5, 39-MB-3
Syracuse University, New York. College for Human Development. 39-DH-1, 39-FA-4

Technion-Israel Institute of Technology, Haifa, Israel. Aba Khoushy School of Medicine. 39-EF-2
Temple University, Philadelphia, Pennsylvania. 39-DB-9
Texas A & M University, College Station. College of Education, Center for Career Development and Occupational Preparation, Department of Educational Psychology. 39-IA-2

Texas Christian University, Fort Worth. Institute of Behavioral Research. 39-KH-1
Texas Department of Public Welfare, Austin. Special Projects Bureau. 39-SD-2
Texas Medical Center, Houston. Baylor College of Medicine, Program for Health Management. 39-MC-1
Texas Research Institute of Mental Sciences, Houston. 39-DD-4, 39-SD-5
Texas University, Richardson. Special Education Program. 39-GE-1
Texas University, San Antonio. College of Multidisciplinary Studies, Division of Education. 39-MB-1
Texas University, San Antonio. Department of Education. 39-PB-5
Texas Woman's University, Denton. Institute of Mental and Physical Development. 39-DD-3
Toronto University, Toronto, Ontario, Canada. Erindale College, Department of Psychology. 39-LA-6
Tulane University, New Orleans, Louisiana. Department of Psychology. 39-EB-3
Tulane University, New Orleans, Louisiana. School of Public Health and Tropical Medicine. 39-SE-1
Tulsa University, Oklahoma. College of Education. 39-DH-7, 39-OA-11
Tulsa University, Oklahoma. Department of Psychology. 39-DG-1
Tulsa University, Oklahoma. Department of Special Education and Communicative Disorders. 39-QF-3
Tulsa University, Oklahoma. Division of Professional Studies. 39-EB-7

Union College, Schenectady, New York. Character Research Project. 39-AA-8, 39-EB-5, 39-MC-2
United Cerebral Palsy of Queens, Jamaica, New York. 39-GF-1, 39-GF-2
U. S. Department of Agriculture, Hyattsville, Maryland. Consumer and Food Economics Institute, Agricultural Research Service. 39-AA-2
Utah University, Salt Lake City. College of Nursing. 39-RH-9
Utah University, Salt Lake City. Department of Psychology. 39-LA-1
Vanderbilt University, Nashville, Tennessee. Department of Psychology. 39-AA-16
Vermont University, Burlington. Department of Psychology. 39-KK-1
Veterans' Administration Hospital, Los Angeles, California. Neurobiochemistry Research Laboratory. 39-JE-2
Victoria University, Victoria, B. C., Canada. Department of Psychology. 39-DC-1
Victoria University, Victoria, B. C., Canada. Faculty of Education. 39-DC-7

Wayne State University, Detroit, Michigan. Department of Psychology. 39-DE-1
Welfare Research, Inc., Albany, New York. 39-RF-1
Westat, Inc., Rockville, Maryland. 39-RA-1
Western Carolina University, Cullowhee, North Carolina. School of Education and Psychology. 39-IA-3
Western Ontario University, London, Ontario, Canada. Department of Psychology. 39-CC-1
Westfalen-Lippe, FBI, Psychologie, Bielefeld, Germany. Padagogische Hochschule. 39-EA-1
West Virginia University, Morgantown. Medical Center, Department of Pediatrics. 39-GE-10, 39-GE-12, 39-GE-13
West Virginia University, Morgantown. Medical Center, Department of Pediatrics; Department of Pharmacology. 39-GE-11
West Virginia University, Morgantown. Medical Center, Department of Neurology and Pediatrics. 39-QF-2
West Virginia University, Morgantown. School of Medicine, Division of Pediatric Cardiology. 39-GE-1
Windsor University, Windsor, Ontario, Canada. Sports Institute; Faculty of Human Kinetics; Faculty of Education; Faculty of Business Administration; Department of Communication Studies. 39-OD-1
Wisconsin University, Madison. Department of Psychology. 39-LC-2
Wisconsin University, Madison. Research and Guidance Laboratory. 39-AA-19

Wisconsin University, Madison.
  University Hospitals, Department of Psychiatry. 39-FA-3
Wyoming University, Laramie.
  College of Education. 39-DH-2

Yale University, New Haven, Connecticut.
  Department of Psychology; Family Television Research and Consultation Center. 39-FE-3
Yeshiva University, Bronx, New York.
  Albert Einstein College of Medicine. 39-AA-5
York University, Downsview, Ontario, Canada. Department of Psychology. 39-JE-5
Youth Center at Topeka, Kansas. 39-KD-1

Zambia University, Lusaka, Zambia.
  Department of Psychology. 39-NA-2

INVESTIGATOR INDEX

Achenbach, Thomas M. 39-GC-4, 39-JA-1
Acredolo, Linda P. 39-DB-4
Ahmann, J. Stanley 39-AA-10
Aldrich, Carl C. 39-EC-2
Alexander, James F. 39-LA-1
Alexander, Rona P. 39-GE-15
Als, Heidelise 39-FA-5
Altman, Douglas 39-AA-18
Altstein, Howard 39-RD-1
Alward, Charles J. 39-LG-1
Anderson, Lowell T. 39-JH-2
Archibald, Reginald M. 39-CF-1
Arnold, L. E. 39-JC-1
Arouchick, Barbara 39-GE-14
Ashmead, Paula 39-GE-14
Ault, Ruth L. 39-LA-1

Baldwin, R. Scott 39-DH-7
Balthazar, Earl E. 39-HC-1
Barber, Lucie W. 39-EB-5, 39-MC-2
Barbour, Henrietta 39-RF-1
Bate, Margaret 39-OA-3
Belson, William 39-FE-5
Bench, John 39-GB-1
Benet, Sarah L. 39-SD-3
Benjamin, Lorna S. 39-FA-3
Berenberg, William 39-GE-5
Berger, O. 39-SH-1
Berman, Louise M. 39-OA-4
Bhatara, V. 39-JC-1
Birns, Beverly 39-AA-5
Bjerstedt, Ake 39-FB-1
Bolley, Jean 39-LF-1
Bolton, Jr., F. G. 39-KJ-1
Boone, Julia 39-SE-2
Borman, Christopher 39-IA-2
Bornstein, Philip H. 39-JC-3
Bowers, Louis 39-GE-8
Bransford, Robert 39-RE-4
Brazelton, T. Berry 39-FA-5
Brent, Sandor B. 39-DE-1
Bridger, Wagner H. 39-AA-5
Bristol, Marie 39-QH-1
Britton, Virginia 39-AA-2
Broen, Patricia A. 39-DH-4
Brothers, Barbara 39-JH-4
Brown, Peggy 39-DH-5
Browner, Shirley 39-OA-4
Bullowa, Margaret 39-AA-14
Burchard, John 39-KK-1
Burke, Linda 39-DB-5, 39-MB-3
Butler, Katie Best 39-DB-1
Button, William H. 39-GF-1, 39-GF-2
Byrne, Margaret C. 39-DH-6

Campbell, B. Kay 39-EA-5
Campbell, Magda . . 39-JE-4, 39-JH-2, 39-JH-3
Carlile, Nancy 39-OA-9
Carson, Linda 39-SD-5
Cavenaugh, David 39-ND-1
Cernik, Helen 39-EB-5
Chard, Jr., Ronald L. 39-GE-4
Chazan, Maurice 39-GE-2
Chee, F. K. W. 39-CG-2, 39-GE-7
Chess, Stella 39-LG-2
Christie, Daniel J. 39-DC-9
Claburn, W. Eugene 39-RE-3
Clark, C. S. 39-SH-1
Clark, David L. . . . . .
. . . . . . 39-CG-2, 39-GE-7, 39-JC-1, 39-JE-1
Clarke, A. D. B. 39-HH-1
Claussner, Michael L. 39-DB-2
Cleave, Shirley 39-OA-2
Clift, Philip S. 39-OA-2
Coady, James M. 39-DH-7
Coates, Thomas J. 39-CB-1
Coats, Boyne 39-OA-9
Cohen, Donald 39-AA-12
Cohen, Murray 39-CC-1
Cohn, Anne Harris 39-RH-2
Collignon, Frederick C. 39-RH-2
Collins, John C. 39-JH-1
Colson, Sharon 39-IA-2
Connolly, K. J. 39-CG-1
Conrad, Frederica 39-JE-7
Contreras, Max 39-DH-2
Cook, Judith 39-AA-18
Cooper, Beatrice 39-AA-17
Cooper, James G. 39-NB-3
Cordua, Glenn 39-FD-1
Corter, C. 39-LA-6
Costin, Lela B. 39-RH-4

Cowen, Emory L. 39-AA-13
Cowen, Ralph 39-OD-1
Cox, Roy L. 39-IA-3
Cratty, Bryant J. 39-CG-3
Cromer, Richard 39-GC-2
Cullen, Jr., John K. 39-GC-1

Damico, Sandra Bowman 39-FA-6
Day, Linda M. 39-JH-1
Dederick, Judith G. 39-IA-1
Dederick, Warren E. 39-IA-1
Deich, Ruth F. 39-HH-2
de Lemos, Marion M. 39-NB-2
Desberg, Peter 39-PB-1
deVoss, G. 39-OG-4
Dibble, Eleanor 39-AA-12
Dickstein, Ellen B. 39-EC-1
Dixon, Suzanne 39-FA-5
Dorr, D. A. 39-AA-13
Drage, Joseph S. 39-AA-11
Driscoll, Mary 39-GE-3
Drummond, Robert J. 39-EB-2
DuBord, Peg 39-QH-1
Duncan, Greg 39-AA-20

Edelbrock, Craig 39-GC-4, 39-JA-1
Edmonson, Barbara 39-HC-2
Eichorn, Dorothy 39-AA-4
Ekstein, Rudolf 39-AA-17
Elinson, Jack 39-SA-2
Elliott, A. 39-AA-18
Elliott, J. M. 39-CG-1
Epstein, Joyce L. 39-DB-12
Esainko, Peter 39-OK-1

Fahmy, Iran 39-JH-1
Fakadej, A. J. 39-HJ-2
Falkner, Frank 39-AA-1
Ferdinand, Theodore N. 39-KR-2
Fernald, Anne 39-FA-1
Fernandez, Paulina 39-LG-2
Festinger, Trudy Bradley 39-RE-2
Fiene, Richard J. 39-MB-4
Finegan, Jo-Anne K. 39-JE-5
Firestone, Philip 39-LF-2
Fisher, Eleanor 39-IA-4
Fitzgerald, Joe 39-GE-1
Flannery, Cynthia 39-JE-3
Fleischer, Ann 39-GC-1
Fleming, Juanita W. 39-LG-3
Forbes, Roy 39-AA-10
Forness, Steven R. 39-GE-9
Frakes, Richard F. 39-OG-2
Frankel, Fred J. 39-GE-9
Fredericks, H. D. 39-HG-1
Friedman, Morton 39-PB-4
Friedman, Seymour W. 39-AA-17
Friedman, Steven 39-JG-1

Gadberry, Sharon L. 39-FE-4
Gallagher, Jeanette 39-DB-9
Garfinkle, Arleen 39-DB-2
Garwood, S. Gray 39-EB-3
Gascon, Generoso G. 39-CC-4
Geller, E. 39-JE-2
Gelles, Richard J. 39-LA-5
Geshuri, Yosef 39-DC-5, 39-DC-6
Gingold, William 39-QH-1
Gladstone, Roy 39-DB-11
Goldmeier, Harold 39-SD-3
Goldstein, Hyman 39-SD-4
Gordon, Ronnie 39-GE-6
Goss, David 39-CC-2
Greeley, Andrew M. 39-LA-7
Greene, Joseph B. 39-JE-8
Greulich, William W. 39-AA-7
Griffin, Marion 39-OA-2
Grossman, Klaus E. 39-EA-1
Grube, Carl 39-GE-1
Gummerman, Kent 39-SD-2
Guth, Patricia A. 39-PB-3
Gutierres, Sara E. 39-KJ-1

Hagovsky, Mathias 39-HC-3
Hale, Janice Ellen 39-NG-1, 39-NG-3
Hallinan, Maureen T. 39-FA-8
Hamilton, Scott B. 39-JC-3
Hammond, Denman 39-AA-22
Hammond, Paul B. 39-SH-1
Hankinson, Graham 39-FE-5
Hanson, Marci J. 39-HG-1
Hardy, Robert C. 39-FA-2
Harrison, Ann 39-CG-1
Hartmann, John R. 39-GE-4
Hayes, Donald S. 39-DC-3
Hays, J. Ray 39-DC-4, 39-SD-5
Heintzelman, Robert 39-KD-1
Heisler, Toni 39-SE-2
Helwig, Carl 39-OB-1
Herrman, Leo 39-KD-1
Hess, Robert J. 39-EB-7
Hewison, Jenny 39-OJ-1

Heymans, H. 39-EF-2
Hickman, Faith M. 39-OA-7
Hilgard, Ernest R. 39-GE-17
Hilgard, Josephine R. 39-GE-17
Hill, Suzanne D. 39-JE-3, 39-JH-4
Hiltz, Rev. John T. 39-EB-5
Hirshoren, Alfred 39-GC-5
Hitt, Jo 39-GE-1
Hodges, Patricia M. 39-HH-2
Hoehle, II, William 39-QH-1
Hofstetter, Henry W. 39-CC-2
Holland, W. W. 39-AA-18
Hollomon, John W. 39-MB-1
Holt, Barbara A. 39-OH-1
Honig, Alice S. 39-DH-1, 39-FA-4
Horton, Joe Ann 39-OA-12
Hotvedt, Martyn O. 39-MC-1
Howe, Cindy 39-DC-4
Hubbell, Virginia Ruth 39-OF-1
Hughes, Earl 39-OE-2
Hunt, E. Joan 39-FA-2
Hurley, O. L. 39-GC-5

Illing, Hans A. 39-KS-1
Ispa, Jean M. 39-GF-3
Izzo, I. D. 39-AA-13

Jacobson, Sylvia R. 39-EF-3
Jahoda. Gustav 39-DB-16
James, Alice 39-LF-1, 39-RE-1
Jantz, Richard K. 39-FA-7
Johnson, George 39-AA-10
Johnson, James E. 39-LC-2
Johnson, Janet W. 39-DC-8
Johnsonbaugh, Roger 39-GC-4
Jones, Dalton 39-DB-8
Jones, Glenys 39-GE-2
Jordan, Thomas E. 39-AA-21

Kaban, Barbara 39-AA-15
Kagia, J. M. 39-CA-1
Kamil, Nancy I. 39-GE-3
Karnes, Merle B. 39-GE-16, 39-QE-1
Kates, Barbara 39-GE-14
Katz, Leonard 39-PB-2
Kavale, K. 39-GC-5
Kelly, Mary Jo 39-LF-2
Kifer, Edward 39-OF-3
Kingsley, Phillip 39-NA-2
Kleiber, Douglas A. 39-EA-3
Klein, David B. 39-LG-1
Klorman, Rafael 39-EF-1
Kohn, Martin 39-KR-1
Koretzky, Martin 39-KR-1
Korn, Sam J. 39-LG-2
Korzenny, Felipe 39-FE-1
Kreutzberg, J. R. 39-CG-2, 39-GE-7
Ktsanes, Virginia K. 39-SE-1

Laing, Alice 39-GE-2
Lakin, Jean 39-SA-1
Lally, J. Ronald 39-DH-1, 39-FA-4
Landauer, Thomas K. 39-CA-1, 39-DB-13
Landres, Peter 39-AA-17
Larsen, Pat 39-NB-2
Lazar, Irving 39-OF-1, 39-QE-1
Lebsack, J. Robert 39-RH-8
Lee, Diane M. 39-OA-4
Lee, Walter S. 39-OG-2
Lehr, Eleonore 39-FA-2
Leitenberg, Harold 39-KK-1
Liebowitz, Joel 39-AA-17
Ligon, Ernest M. 39-AA-8
Lindholm, L. P. 39-FB-1
Little, Wesley 39-DH-2
Lombroso, Cesare T. 39-CC-4
Longstreth, Langdon E. 39-DB-15, 39-NA-1
Lynn, David B. 39-LA-8

McCaffrey, Mary 39-RH-3
McCall, Robert 39-AA-1
McCready, William C. 39-LA-7
McDonald, Eugene 39-DH-3
McGillicuddy-DeLisi, Ann V. 39-LC-2
McGraw, Kenneth O. 39-FD-1
McIntire, Walter G. 39-EB-2
McIntyre, Curtis W. 39-DC-2, 39-EC-1
McLane, Joan 39-DF-1
McNaughton, Shirley 39-GE-14
McPartland, James M. 39-DB-12
Mahoney, Gerald James 39-HG-2
Malinka, Robert 39-OA-6
Mancuso, James C. 39-EC-2
Mandler, Jean M. 39-DB-14
Mann, Robert W. 39-GE-3, 39-GE-5
Marsh, George 39-PB-1, 39-PB-4
Massie, Henry 39-EA-5
Matsumiya, Yoichi 39-CC-4
Matz, Robert D. 39-GF-3
May, Richard B. 39-DC-1
Meighan, S. Spence 39-GA-1
Michael, L. W. 39-SH-1

Michaels, Gerald Y. ... 39-MA-1
Milman, Doris H. ... 39-EA-4
Minde, Klaus ... 39-LA-6
Morgan, Arlene ... 39-GE-17
Morgan, James N. ... 39-AA-20
Morgan, Lynne ... 39-SD-2
Moriarty, Dick ... 39-OD-1
Morrison, Delmont C. ... 39-JE-7, 39-JE-8
Morrison, James F. ... 39-EC-2
Mullett, Martha ... 39-GE-10, 39-GE-11, 39-GE-12, 39-GE-13
Murnane, Michael J. ... 39-GE-15
Murray, Harry ... 39-OF-1
Murray, Michael ... 39-DC-2

Naeye, Richard L. ... 39-SD-1
Nash, William ... 39-IA-2
Neal, William A. ... 39-GE-10, 39-GE-11, 39-GE-12, 39-GE-13
Nelsen, Hart M. ... 39-NC-1
Netley, C. ... 39-DB-7
Newman, Barbara M. ... 39-FA-9
Newman, H. ... 39-JE-1
Nunnally, Jum C. ... 39-AA-16

O'Connor, William ... 39-LC-1
Ohberg, Hjordis G. ... 39-JH-1
Olafson, Gordon ... 39-OD-1
Oliver, B. Carl ... 39-OA-11
O'Neill, Gladys ... 39-RF-1
Ortman, Elaine ... 39-RH-9

Paivio, Allan ... 39-CC-1
Papoušek, Hanus ... 39-FA-1
Papoušek, Mechthild ... 39-FA-1
Parchure, Shrikant ... 39-RE-4
Parsons, Joseph A. ... 39-EA-2
Patton, Michael Q. ... 39-OA-8
Peatling, John H. ... 39-EB-5
Peer, Gary ... 39-EB-7
Perry, Nancy J. ... 39-OA-12
Phillips, Jerri Linn ... 39-HC-1
Piro, Nancy A. ... 39-DB-10
Pollane, Leonard ... 39-RE-4
Pollin, William ... 39-AA-12
Porter, Mary ... 39-EB-7
Powell, Evan ... 39-PA-2
Powell, J. ... 39-OD-1
Pozdol, Marvin ... 39-OA-6
Preston, Ralph C. ... 39-OH-2, 39-PB-3
Prpich, Marge Holman ... 39-OD-1
Pruzansky, Samuel ... 39-AA-9
Pulvino, Charles ... 39-AA-19
Purkey, William W. ... 39-FA-6
Pyle, S. Idell ... 39-AA-7

Quevillon, Randal P. ... 39-JC-3
Quinn, Barbara A. ... 39-DB-3

Ragab, Megib ... 39-OD-1
Raimondi, Anthony J. ... 39-GC-3
Rampp, Donald L. ... 39-GC-1
Reich, John W. ... 39-KJ-1
Relihan, Juliette ... 39-DF-2
Rie, Herbert E. ... 39-JH-5
Rimland, Bernard ... 39-JE-6
Ritvo, Edward R. ... 39-JE-2
Roche, Alexander F. ... 39-AA-1
Roderick, Jessie A. ... 39-OA-4
Rodney, Clare ... 39-NB-1
Rohner, Evelyn C. ... 39-LA-4
Rohner, Ronald P. ... 39-LA-4
Romanow, Walter ... 39-OD-1
Roodin, Paul A. ... 39-EC-3
Rosen, Sidney ... 39-PA-2
Ross-Sheriff, Fariyal ... 39-DC-10
Rovet, Joanne ... 39-DB-7
Rubendall, Ann ... 39-OG-1
Rusch, Reuben R. ... 39-DD-1, 39-DD-2
Ryan, Sally ... 39-LA-3
Rybash, John M. ... 39-EC-3

Sabovich, Karen ... 39-LA-2
Sanborn, Marshall P. ... 39-AA-19
Sanders, Walter J. ... 39-DB-6
Sandow, S. A. ... 39-HH-1
Savara, Bhim Sen ... 39-AA-6
Schain, Richard J. ... 39-JH-6
Schilit, Jeffrey ... 39-HA-1
Schnall, Sandra M. ... 39-RH-5
Schoen, Edgar ... 39-AA-3
Schoetzau, Angela ... 39-FA-1
Schofield, W. N. ... 39-OJ-1
Scholnick, Ellin Kofsky ... 39-DC-4, 39-DC-8
Schorer, C. E. ... 39-CG-4
Schroeder, Anita ... 39-RA-1
Schubot, Dave ... 39-PA-2
Schwarz, Robert H. ... 39-HG-1
Seefeldt, Carol ... 39-EB-4, 39-FA-7
Seeley, Kenneth R. ... 39-IA-6
Segal, Marilyn ... 39-OE-2
Seifert, Kelvin Lee ... 39-OG-3
Sells, S. B. ... 39-KH-1

Serpell, Robert 39-NA-2
Shackleton-Bailey, Michael 39-GE-2
Sheehan, Donald J. 39-OA-1, 39-OA-10
Shopsin, Baron 39-JH-3
Shores, Jay H. 39-PA-1
Sigal, John 39-OF-2
Sigel, Irving E. 39-LC-2
Silverman, Harry 39-GE-14
Simmons, M. Patricia 39-QH-2
Simmons, Richard 39-DB-2
Simon, Rita James 39-RD-1
Simpkins, Katherine 39-GE-1
Simpson, D. Dwayne 39-KH-1
Sines, Jacob O. 39-JC-2
Singer, Arthur 39-QF-1
Singer, Dorothy G. 39-FE-3
Singer, Jerome L. 39-FE-3
Sinks, Thomas A. 39-OA-6
Skoch, Sister Louise Marie 39-EB-5
Smith, Anita L. 39-DD-4
Smith, Doris O. 39-OG-1
Smith, Ian D. 39-EB-1
Smith, Marjorie 39-OA-3
Smith, Richard 39-GE-1
Snider, Bill 39-SA-1
Soare, Pegeen L. 39-GC-3
Solomons, Hope 39-SA-1
Solway, Kenneth S. 39-DD-4, 39-SD-5
Sorenson, Danita 39-JE-7
Southgate, Peter 39-FE-5
Spellman, Charles R. 39-HJ-1
Stanley, Julian C. 39-IA-5
Stark-Seitz, Rachel E. 39-CC-3
Steiner, Judy 39-DD-1, 39-DD-2
Steinmetz, Suzanne K. 39-LA-5
Stephens, W. Beth 39-GE-1
Stewart, Ida Santos 39-MB-2
Stockman, Ida J. 39-DH-3
Stone, Norma K. 39-MB-2
Stoner, Sue 39-DH-5
Strait, William R. 39-MC-2
Straus, Murray A. 39-LA-5
Streeter, Lynn A. 39-DB-13
Sumner, Ray 39-OA-3
Sung, Betty Lee 39-NG-2
Sutherland, Dale 39-GE-14
Svoboda, William B. 39-HJ-2, 39-QF-2
Symann-Louett, Nicole 39-CC-4

Tallal, Paula 39-CC-3
Theimer, Kaye 39-QF-3
Thomas, George 39-RE-4
Thomas, Stephen 39-AA-3
Thompson, George N. 39-KD-2
Thompson, John 39-OA-9
Thompson-Heisser, Patricia A. 39-LA-2
Thoresen, Carl E. 39-CB-1
Tidwell, Romeria 39-QF-1
Timberlake, Elizabeth M. .. 39-RH-6, 39-RH-7
Timko, Henry G. 39-DC-7
Tittler, Bennett I. 39-JG-1
Tizard, John 39-OJ-1
Tobey, Emily A. 39-GC-1
Topp, S. G. 39-AA-18
Trehub, S. 39-LA-6
Tronick, Edward 39-FA-5
Trost, M. A. 39-AA-13

Underhill, Robert G. 39-PA-1
Uselding, Douglas K. 39-FE-2

van den Berg, Bea J. 39-AA-3
Vandenberg, Steven G. 39-DB-2
Van Krevelen, Alice 39-OA-5
Verburg, Geb 39-GE-14

Wain, Carol 39-FE-5
Wallace, Helen M. 39-SD-4
Watkins, Cora 39-OA-12
Watkins, Ernest O. 39-DD-3
Watts, Jean 39-AA-15
Weiser, Margaret 39-SA-1
Weitman, Morris 39-GA-1
Welliver, Barbara 39-JH-1
Werton-Dalton, Pamela 39-PB-5
Wertsch, James V. 39-DF-1
Westman, Alida 39-DE-2
Westra, Dorothy 39-OE-1
Wetter, Jack 39-QF-1
Wharton, Lillie B. 39-DH-3
White, Burton L. 39-AA-15
Whiting, John W. M. 39-CA-1, 39-DB-13
Wicklund, David A. 39-PB-2
Wiebe, Michael J. 39-DD-3
Wiechel, L. 39-FB-1
Wiener, Jacob G. 39-RH-1
Wilkinson, Charles B. 39-LC-1
Will, Edward E. 39-MC-1
Williams, Herman 39-MC-2
Williams, Stephen 39-OA-9
Wilson, Mark 39-GE-11
Winter, S. T. 39-EF-2

Wish, Joel 39-HC-2
Woodhead, Martin 39-OA-2
Wright, Robert J. 39-DB-9

Yebio, B. 39-FB-1
Yogman, Michael W. 39-FA-5
Yuwiler, Arthur 39-JE-2

Zalk, Sue Roseberg 39-IA-1
Zeitler, W. R. 39-PC-1
Ziller, R. C. 39-EB-6
Zusne, Leonard 39-DG-1

SUBJECT INDEX

Administrative aspects of
  child abuse prevention agencies 39-RH-2
  childbirth education organizations 39-MC-2
  child welfare agencies 39-RE-3, 39-RH-1
  middle schools 39-OA-6
  nursery schools in England 39-OA-3
  nursery school staff in England 39-OA-2
  sports organizations 39-OD-1
  welfare agencies (for migrants) 39-ND-1
Adolescents
  birth control 39-SE-2
  contraceptive use 39-SE-1
  delinquent 39-EB-6, 39-KD-1, 39-KD-2, 39-KR-1, 39-KR-2
  drug abuse 39-KH-1
  effects of TV violence 39-FE-5
  family attitudes 39-LA-7
  family-school influences 39-DB-12
  gifted females 39-IA-1
  growth and development 39-AA-6
  health services 39-SD-4
  homicide 39-SD-5
  obesity 39-CB-1
  parenthood education 39-MC-1
  pregnant 39-SD-4
  school dropouts 39-AA-10
  self-management 39-CB-1
  social interaction 39-FA-9
  sons in female headed families 39-LC-1
  teen-age mothers 39-SD-2
Adoption 39-RD-1
African children 39-CA-1, 39-DB-13, 39-DB-16, 39-NA-2
Age differences 39-FB-1
Aging process 39-AA-1
Alcohol
  abuse 39-KD-2
  use 39-LA-7
Altruism 39-EC-1
American Indian children 39-DH-2, 39-KD-1
American Sign Language 39-JE-7
Anxiety 39-EB-1, 39-EF-1
Aphasia 39-GC-2, 39-GE-9
Arab mothers 39-EF-2
Asian college students 39-NA-1
Aspirations 39-OH-2. See also Values.
Athletics 39-OD-1
Attitudes
  of children toward
    aging and the elderly 39-FA-7
    atypical sex roles 39-FD-1
    foreign groups 39-FB-1
    high school 39-OG-2
    hospitalization 39-LG-3
    hostage experience 39-EF-3
    institutions 39-KR-2
    parents' caregiving behavior 39-MA-1
    politics 39-NC-1
    religion 39-NC-1
    school 39-OG-4
    sexual equality 39-FB-1
    skyjacking 39-EF-3
    transracial adoptive parents 39-RD-1
  of parents toward
    handicapped children 39-GF-1
  of teachers toward
    gifted children 39-IA-6
    handicapped children 39-GF-3
  toward
    delinquents 39-HA-1
    mentally retarded children 39-HA-1
Auditory perception disorders 39-GC-1
Australian children 39-EB-1, 39-NB-2
Autism 39-GE-9, 39-JE-1, 39-JE-2, 39-JE-4, 39-JE-5, 39-JE-6, 39-JE-7, 39-JH-2, 39-JH-4

Battered children. See Child abuse.
Behavior
  abnormal 39-KD-2
  aggressive 39-JH-3, 39-RH-7
  antisocial 39-FE-1
  attachment 39-RH-9
  attention in hyperactive children 39-JH-6
  autistic 39-JE-1
  communicative 39-AA-14
  coping 39-RH-7
  criminal 39-KD-2
  deviant 39-QF-2
  disorders 39-QH-1
  emotional adjustment 39-EB-4
  exploratory 39-DB-1
  imitative 39-DC-5, 39-DC-6
  maternal 39-LA-6
  modification 39-JC-3

  moral 39-EC-1
  of infants 39-AA-5, 39-AA-14
  of nonverbal retarded children 39-HH-2
  parental caregiving 39-MA-1
  play 39-NG-3
  prediction 39-JC-2
  problems 39-JA-1, 39-JC-2, 39-JC-3, 39-LF-2
  profiles of emotionally disturbed children 39-JA-1
  reinforcement 39-EA-2
  social/emotional 39-GF-3
  therapy 39-JH-2
  violence in the family 39-LA-5
Bilingualism 39-NB-3
Birth
  control 39-SE-2
  defects 39-OA-7
  order 39-FA-2
Black
  children 39-DB-1, 39-DB-8, 39-DC-10, 39-EB-3, 39-FA-6, 39-KD-1, 39-LC-1, 39-LF-1, 39-MB-1, 39-MB-2, 39-MC-1, 39-NG-1, 39-NG-3, 39-OF-1, 39-OK-1, 39-PA-2, 39-PB-1, 39-RD-1
  college students 39-NA-1
Blind children 39-GE-1
Body proportion 39-AA-7

Canadian
  children 39-CC-1, 39-DB-7, 39-DE-1, 39-JE-5, 39-LA-4, 39-LA-6, 39-LF-2, 39-OD-1, 39-OF-2, 39-OG-3
  Ojibaway Indian children 39-DE-1
Cancer 39-AA-22, 39-GE-4, 39-GE-17
Career
  aspiration/satisfaction 39-OH-2
  development 39-IA-2
  education 39-OB-1, 39-OH-1
Cerebral
  dysfunction 39-EA-4
  palsy 39-AA-11, 39-CG-1, 39-GE-3, 39-GE-7, 39-GE-8, 39-GE-14, 39-GE-15, 39-GF-2
Character development 39-AA-8
Chicano children 39-DH-2, 39-MB-2
Child abuse 39-KJ-1, 39-RH-1, 39-RH-2, 39-RH-3, 39-RH-4, 39-RH-5, 39-RH-6, 39-RH-7, 39-RH-8, 39-RH-9
Childbirth education 39-MC-2
Childrearing. See Family.
Child welfare agencies 39-RA-1
Chinese-American children 39-NG-2
Chinese children 39-PA-1
Clothing budgets 39-AA-2
Coeducation 39-IA-1
College students 39-DC-8, 39-NA-1, 39-OA-11
Communal environments 39-DB-5, 39-MB-3
Communication
  Blissymbol System 39-GE-14
  nonvocal 39-HH-2
  skills 39-DH-1
Community
  influence on childrearing 39-MB-4
  programs 39-RH-2
Congenital rubella syndrome 39-LG-2
Consumer aids 39-AA-2
Contraception 39-SE-1, 39-SE-2
Corrections 39-KS-1
Craniofacial anomalies 39-AA-9
Creativity 39-OE-1
Crime 39-KJ-1
Crippled children. See Physically handicapped children.
Cross-cultural studies 39-DB-13, 39-DE-1, 39-LA-4, 39-LA-7, 39-MB-1, 39-NB-1, 39-NB-2, 39-OF-3, 39-PA-1
Cultural
  bias 39-DD-4
  factors 39-DD-4, 39-DE-1, 39-DH-2, 39-EF-2, 39-LA-7, 39-MB-1, 39-MB-2, 39-NA-2, 39-NB-2, 39-NB-3, 39-ND-1, 39-NG-1, 39-NG-2, 39-NG-3, 39-PA-1

Day care 39-FA-4, 39-MB-2, 39-RF-1, 39-SA-1
Day treatment programs
  for disturbed children 39-JH-1
  for juvenile delinquents 39-KR-1
Deaf children 39-GC-2, 39-GC-5
Delinquency 39-KR-1
  patterns 39-KJ-1
  prevention 39-KK-1
Dental
  fear of treatment 39-EF-1
Dentofacial growth 39-AA-6
Down's syndrome 39-HG-1, 39-HG-2, 39-HH-1
Drug
  abuse 39-KD-2, 39-KH-1
  therapy 39-CF-1, 39-HJ-2, 39-JH-4, 39-JH-6
    chlorpromazine 39-JH-3
    haloperidol 39-JH-2, 39-JH-3
    indomethacin 39-GE-10
    kanamycin 39-GE-12
    lithium carbonate 39-JH-3

  - ritalin 39-JH-5
- Dyslexia 39-CC-4

- Education
  - academic achievement 39-AA-21, 39-FA-6, 39-FE-4, 39-IA-1, 39-MB-3, 39-NB-2, 39-NB-3, 39-OF-2, 39-OF-3, 39-OK-1, 39-QF-2
  - accelerated programs 39-DB-5
  - adjustment 39-EB-4
    - to high school 39-OG-2
    - to school 39-OG-1
  - assessment material development 39-OA-3
  - bilingual 39-NB-3
  - by parents 39-QH-1
  - career 39-IA-2, 39-OB-1
  - childbirth 39-MC-2
  - children's attitudes toward 39-OG-4
  - class clown phenomenon 39-FA-6
  - classroom structure 39-EB-1
  - class size 39-OF-2
  - communal schools 39-DB-5
  - compensatory programs 39-QE-1
  - computerized 39-OB-1
  - creativity 39-OE-1
  - curriculum 39-FA-7
  - desegregation 39-OK-1
  - dropouts 39-AA-10
  - early childhood 39-GE-2, 39-OA-8, 39-OF-1
    - foreign programs 39-NB-1
  - ethnic differences in college performance 39-NA-1
  - family-school interaction 39-DB-12
  - foreign exchange program 39-OA-5
  - for parenthood 39-MC-1
  - genetics 39-OA-7
  - guidance of superior students 39-AA-19
  - Head Start 39-DH-5
  - home economics 39-OH-1
  - home visitation 39-FA-4
  - individualized 39-GE-9, 39-PC-1
  - instructional models 39-OA-1
  - learning centers 39-OA-4
  - literature 39-PB-3
  - mainstreaming 39-GE-6, 39-GF-3
  - maladaptation 39-AA-13
  - mathematics 39-IA-5, 39-PA-1, 39-PA-2
  - mental health 39-AA-13
  - middle schools 39-OA-6
  - models 39-GE-16
  - nursery school 39-OA-3
  - of Down's syndrome infants 39-HG-1
  - of gifted handicapped children 39-GE-2, 39-GE-9
  - of severely subnormal children 39-HH-1
  - open classroom 39-OA-9, 39-OG-1
  - open vs. traditional 39-DB-12
  - parent 39-OE-2
  - parent-teacher collaboration 39-OJ-1
  - preschool
    - intervention effects 39-OF-1
    - programs
      - Bereiter Engelmann 39-QE-1
      - Community Integrated 39-QE-1
      - Karnes 39-QE-1
      - Karnes Ameliorative 39-QE-1
      - Montessori 39-QE-1
  - prescriptive 39-QH-1
  - prisoner tutors 39-OA-12
  - program evaluation 39-AA-13
  - psychoeducational evaluation 39-QF-1
  - readiness 39-OE-2
  - reading 39-OJ-1, 39-PB-1, 39-PB-5
  - school
    - influence on childrearing 39-MB-4
    - readiness 39-NB-2
  - science 39-PC-1
  - social studies 39-OA-11, 39-PB-3
  - special 39-GE-1, 39-GE-8, 39-PB-4, 39-QF-3, 39-QH-1, 39-QH-2
  - sports 39-OD-1
  - surveys 39-OF-3
  - teacher 39-OA-11
    - aides 39-AA-13
    - attitude toward IQ measures 39-IA-6
    - behavior 39-OG-3
    - instructional mode 39-OA-10
    - -pupil relationship 39-OG-3
    - role 39-OA-2
    - verbal behavior 39-OA-1
  - teaching practices 39-OA-2
  - television effects on grades 39-FE-4
  - vocational 39-OH-1
- Eidetic imagery 39-CC-1
- Electroencephalograms 39-CC-4
- Emotionally disturbed children 39-AA-17, 39-HH-1, 39-JA-1, 39-JC-1, 39-JC-2, 39-JC-3, 39-JE-1, 39-JE-2, 39-JE-3, 39-JE-4, 39-JE-5, 39-JE-6, 39-JE-7, 39-JE-8, 39-JG-1, 39-JH-1, 39-JH-2, 39-JH-3, 39-JH-4, 39-JH-5, 39-JH-6, 39-LF-1, 39-QH-1

English children 39-AA-18, 39-CG-1, 39-FE-5, 39-GB-1, 39-GC-2, 39-GE-2, 39-HH-1, 39-NB-1, 39-OA-2, 39-OA-3, 39-OJ-1
Environmental
  factors 39-AA-15, 39-AA-21, 39-DB-5, 39-MB-3, 39-OA-4, 39-OA-9, 39-OG-1, 39-OG-3
  influences 39-DB-13, 39-JC-2
Epilepsy 39-GA-1, 39-HJ-2
Ethnic
  differences 39-NA-1
  factors 39-LA-7, 39-NB-3
  See also specific groups.
Exceptional children. See specific types.

Family
  abusive parents 39-RH-6
  adjustment of Chinese immigrants 39-NG-2
  alcohol/drug dependent mothers 39-SD-3
  attitudes 39-LA-7
  black 39-MB-1
  child abuse 39-RH-1, 39-RH-5, 39-RH-6, 39-RH-7, 39-RH-8
  childrearing 39-AA-15, 39-DB-12, 39-LC-2, 39-MA-1, 39-MC-1
    practices 39-KJ-1, 39-MB-1, 39-MB-2, 39-MB-3, 39-MB-4
    problems of gifted children 39-IA-4
  Chinese American 39-MB-1
  clothing budget 39-AA-2
  correlates of nutrition 39-AA-18
  counseling 39-LF-1
  court review of foster care 39-RE-2
  day care users 39-RF-1
  distress 39-LG-2
  drawings of hospitalized children 39-LG-3
  dynamics 39-LG-1
  dysfunction 39-RH-6
  education 39-MC-1, 39-OA-8
  environment 39-AA-15
  father-daughter interaction 39-LA-8
  father-infant interaction 39-FA-5
  female headed 39-LC-1
  foster care 39-RE-1, 39-RE-3, 39-RE-4
  income survey 39-AA-20
  influence on cognitive development 39-LC-2
  investigation of homes for lead hazards 39-SH-1
  maternal
    attachment 39-EA-1, 39-EA-5, 39-LA-6, 39-RH-9
    correlates of neonatal behavior 39-AA-5
    fear of pregnancy 39-EF-2
    -infant interaction 39-DC-6, 39-DF-1, 39-DH-6, 39-EA-5, 39-FA-1, 39-HG-2
    influence on children's fears 39-EF-1
    influences 39-AA-21, 39-LC-1
  Mexican-American 39-MB-1
  military 39-RH-5
  of gifted children 39-IA-3, 39-IA-4
  of handicapped children 39-LG-2
  parental
    acceptance-rejection of children 39-LA-4
    attitudes 39-LC-2
      toward handicapped children 39-GE-5, 39-GF-2
    caregiving behavior 39-MA-1
    guidance 39-AA-19
    programs of education 39-EB-5
    training as therapists 39-LF-2
  parent-child
    interaction 39-FA-3, 39-FE-1, 39-JG-1, 39-LA-1, 39-LA-3
    relationship 39-LA-4
  parenting
    programs 39-MC-2
    skills 39-EB-5
  planning 39-SE-2
  relationships 39-MA-1
  rules 39-LA-3
  Russian-American 39-MB-1
  -school interaction 39-DB-12
  services for child abuse prevention 39-RH-2
  Spanish-speaking parents 39-MB-2
  stress caused by illness 39-LG-1
  Swiss-American 39-MB-1
  teen-age
    mothers 39-SD-2
    use of contraception 39-SE-1
  therapy 39-JG-1, 39-KS-1, 39-LA-2
  violence 39-LA-5
Foreign exchange programs 39-OA-5
Foster care 39-KK-1, 39-RE-1, 39-RE-2, 39-RE-3, 39-RE-4, 39-RH-7
Foster parent training 39-KK-1
French children 39-NB-1
Friendship cliques 39-FA-8

Games 39-EA-3
Genetics 39-AA-3
  defects 39-AA-9
  diseases 39-OA-7

- German children 39-EA-1, 39-FA-1
- Gifted children 39-GE-16, 39-IA-1, 39-IA-2, 39-IA-3, 39-IA-4, 39-IA-5, 39-IA-6
- Goals. See Values.
- Greek children 39-NB-1, 39-NB-2
- Guidance laboratory for superior students 39-AA-19

- Head Start 39-DH-5
- Health
  - birth defects 39-OA-7
  - blood
    - analysis of autistic children 39-JE-2
    - transfusions 39-GE-13
  - cancer 39-AA-22, 39-GE-4
  - congenital rubella syndrome 39-LG-2
  - contraception 39-SE-1
  - enterocolitis 39-GE-12
  - illness patterns 39-SA-1
  - infant mortality 39-SD-1
  - lead poisoning 39-SH-1
  - maternal-child 39-SD-2
  - nutrition 39-AA-18
  - obesity 39-CB-1
  - obstetrical histories 39-JE-5
  - screening
    - handicapped children (England/Wales) 39-GE-2
    - in day care centers 39-SA-1
  - sepsis (puerperal) 39-GE-11
  - services 39-GC-1, 39-SD-2, 39-SD-3, 39-SD-4, 39-SE-1, 39-SE-2
  - sex hormone abnormalities 39-GC-4
  - status 39-AA-1
  - sudden infant death syndrome 39-SD-1
  - surveys 39-SA-2
  - thyroid abnormalities 39-GC-4
  - vaccinations 39-CA-1
- Hereditary factors 39-DB-2
- Heredity. See Genetics.
- High school
  - dropouts 39-AA-10
  - early graduates 39-AA-10
  - students 39-OF-2, 39-OG-2, 39-OH-1, 39-IA-1, 39-IA-2
- Hispanic children 39-MC-1
- Hospitalized children 39-DB-7, 39-GE-4, 39-GE-10, 39-GE-11, 39-GE-12, 39-GE-17, 39-HH-2, 39-LA-6, 39-LG-1, 39-LG-3
- Hydrocephalus 39-GC-3
- Hyperkinesis 39-DC-2, 39-JC-1, 39-JH-3, 39-JH-5, 39-JH-6, 39-LF-2
- Hypnosis to alleviate pain 39-GE-17

- Idiot savant abilities 39-JE-6
- Imagination related to TV viewing 39-FE-3
- Immigrant children 39-NB-2
- Immigration 39-NG-2
- Indian children 39-PA-1
- Individual
  - characteristics 39-IA-3
  - differences 39-AA-12
- Infants
  - behavior 39-DB-4
  - environmental factors 39-AA-12
  - growth and development 39-AA-9
  - health care 39-SD-2
  - hospitalized 39-LG-1
  - identical twins 39-AA-12
  - language
    - acquisition 39-AA-14
    - development 39-DH-1
  - mortality 39-SD-1
  - motor development 39-CG-2
  - neurological disorders 39-AA-11
  - premature 39-LA-6
  - psychological development 39-EA-5
  - scratching 39-CG-4
  - social development 39-FA-1, 39-FA-5
- Institutionalized children 39-AA-17, 39-HC-1, 39-HC-2, 39-HJ-2, 39-JG-1, 39-KD-1, 39-KR-2
- Intelligence
  - analogic reasoning 39-DB-9
  - assessment 39-DD-2
  - attention 39-DC-2
  - cognitive
    - development 39-AA-4, 39-AA-15, 39-AA-21, 39-CC-3, 39-CG-1, 39-DB-1, 39-DB-2, 39-DB-3, 39-DB-4, 39-DB-5, 39-DB-8, 39-DB-9, 39-DB-11, 39-DB-12, 39-DB-13, 39-DB-14, 39-DB-15, 39-DB-16, 39-DC-1, 39-DC-4, 39-DC-6, 39-DC-7, 39-DC-8, 39-DC-9, 39-DE-1, 39-DF-1, 39-EB-3, 39-GC-3, 39-GC-4, 39-GE-1, 39-HG-1, 39-JE-3, 39-LA-8, 39-LC-2, 39-MB-3, 39-NA-2, 39-NG-1, 39-OA-10, 39-OF-1, 39-PB-3, 39-PB-4,
    - processes 39-DB-7, 39-DB-10, 39-DB-14, 39-DC-3, 39-DC-10, 39-PB-2
    - style 39-NG-3

  conceptual development 39-DE-1, 39-DE-2
  conservation 39-DB-6, 39-DB-11
  delayed development 39-QH-1
  imitation 39-DC-5
  language development 39-DH-1
  learning patterns 39-HC-3
  measurement 39-AA-4, 39-AA-15
  memory 39-CC-1, 39-DB-10, 39-DC-4
  of children with phenylketonuria 39-HC-3
  perceptual development 39-DG-1
  problem solving 39-DF-1, 39-DF-2, 39-EA-2, 39-PA-1
  racial differences 39-NA-1
  reasoning abilities 39-DB-15
  testing 39-DD-1, 39-DD-3, 39-DD-4, 39-IA-6, 39-NA-2
  thought processes 39-NG-1
International studies 39-LA-4, 39-OA-5, 39-OF-3
Irish children 39-NB-1
Israeli
  children 39-NB-1
  mothers 39-EF-2
Italian children 39-NB-1, 39-NB-2

Japanese children 39-DE-1
Juvenile delinquency 39-EB-6, 39-HA-1, 39-KD-1, 39-KD-2, 39-KJ-1, 39-KR-2, 39-KS-1

Language
  acquisition 39-AA-14, 39-DH-2, 39-DH-6, 39-HG-2
  black dialect 39-PB-1
  comprehension 39-CC-1
  development 39-AA-14, 39-AA-15, 39-DH-1, 39-DH-3, 39-DH-4, 39-DH-5, 39-DH-7, 39-GC-2, 39-OA-4
  disabilities 39-DH-2
  sign 39-JE-7
  syntactic structures 39-DH-7
  training
    of autistic children 39-JE-7
    of cerebral palsied children 39-GE-15
    See also Communication; Speech.
Lead screening program 39-SH-1
Learning
  aptitude 39-GC-5
  centers 39-OA-4
  disabilities 39-CC-4, 39-DC-2, 39-GE-3, 39-PB-4, 39-QF-1, 39-QF-2, 39-QF-3
  discrimination 39-DC-7
  environment 39-OA-9
  from TV antisocial portrayals 39-FE-1
  imitation 39-DC-5, 39-DC-6
  incentive values 39-AA-16
  memory 39-DB-14, 39-DC-3, 39-DC-4, 39-DC-8, 39-DC-9, 39-DC-10, 39-DF-2
  response to stimuli 39-DC-1
  style (black children) 39-NG-1
Literature review
  of child protection services 39-RH-4
  of foster care 39-RE-3
Locus of control 39-EB-1

Manual skills 39-CG-1
Medical research 39-AA-22, 39-GE-4, 39-GE-10, 39-GE-11, 39-GE-12, 39-GE-13
Mental health 39-LA-2
  programs 39-AA-13
Mentally retarded children 39-DB-15, 39-GE-8, 39-GE-9, 39-HA-1, 39-HC-1, 39-HC-2, 39-HC-3, 39-HG-2, 39-HH-1, 39-HH-2, 39-HJ-1, 39-HJ-2, 39-QF-2
Mexican children 39-LA-4
Middle schools
  six-state survey 39-OA-6
Migrants 39-ND-1
Military families 39-RH-5
Model programs
  prevention of child abuse 39-RH-3
Mongoloid children 39-HH-1
Montessori programs 39-EB-4
Mortality 39-AA-3
Motor
  abilities 39-AA-4
  development 39-CG-1, 39-CG-2, 39-CG-3, 39-CG-4, 39-DC-6, 39-GE-7
Myelomeningocele 39-GC-3
Myopia 39-CC-2

National
  studies 39-OF-1, 39-RA-1
  surveys 39-AA-20, 39-MC-2, 39-RH-8, 39-SA-2, 39-SD-4
Neonates 39-EA-1, 39-GE-11, 39-GE-12, 39-GE-13, 39-LA-6, 39-MC-2
  individual differences 39-AA-5
  premature 39-GE-10
  social development 39-FA-1
Neoplasi 39-GE-4
Neurological impairments 39-CG-3
Newborn infants. See Neonates.

Nutrition 39-AA-6
  of English children 39-AA-18

Obesity 39-CB-1
Occupational therapy 39-GE-3
Open education 39-OA-4, 39-OA-9

Pain 39-GE-17
Paraprofessionals 39-QH-2
Parenthood education 39-MC-1, 39-MC-2
Parent
  participation and education 39-EB-5, 39-FA-4, 39-FE-3, 39-GE-6, 39-GE-15, 39-HG-1, 39-HH-1, 39-KK-1, 39-LF-2, 39-MB-2, 39-OA-8, 39-OE-2, 39-OJ-1, 39-QF-1, 39-QH-2
  training programs 39-FE-3
Peer
  relations 39-EB-7, 39-FA-2, 39-FA-6
  tutoring 39-PA-2
Perception (figure ground) 39-DG-1
Perceptual
  development 39-CC-3
  motor processes 39-CC-1, 39-CC-3, 39-CG-2, 39-CG-3, 39-DB-4, 39-DB-6, 39-DG-1, 39-GC-1, 39-GC-3, 39-GE-3, 39-JE-3, 39-PB-2
Perinatal factors 39-AA-3, 39-AA-11, 39-AA-12, 39-JE-5, 39-SD-3
Personality
  aggression 39-JH-3
  anxiety 39-EF-2
  assessment 39-FA-4, 39-JC-2
  development 39-AA-1, 39-AA-12, 39-DB-12, 39-EA-2, 39-EA-4, 39-EA-5, 39-FE-1
    cooperation/competition 39-EA-3
    emotional 39-LA-4
  emotional security 39-EA-1
  fear of dental treatment 39-EF-1
  fears 39-EF-3
    during pregnancy 39-EF-2
  leadership style 39-FA-2
  model in maternal anxiety 39-EF-1
  moral development 39-EC-2, 39-EC-3
  role taking 39-EC-1
  self-concept 39-EB-1, 39-EB-2, 39-EB-3, 39-EB-4, 39-EB-5, 39-EB-6, 39-EB-7, 39-FA-6, 39-JE-3, 39-OF-2
Phenylketonuria 39-HC-3
Physical
  development of motor skills 39-CG-1
  growth and development 39-AA-1, 39-AA-3, 39-AA-4, 39-AA-5, 39-AA-6, 39-AA-7, 39-AA-9, 39-AA-12, 39-AA-21, 39-CA-1, 39-CF-1, 39-DB-7, 39-GE-7, 39-GF-2, 39-JE-1, 39-SH-1
Physically handicapped children 39-AA-22, 39-CG-1, 39-GA-1, 39-GB-1, 39-GC-1, 39-GC-2, 39-GC-3, 39-GC-4, 39-GC-5, 39-GE-1, 39-GE-2, 39-GE-3, 39-GE-4, 39-GE-5, 39-GE-6, 39-GE-7, 39-GE-8, 39-GE-9, 39-GE-10, 39-GE-11, 39-GE-12, 39-GE-13, 39-GE-14, 39-GE-15, 39-GE-16, 39-GE-17, 39-GF-1, 39-GF-2, 39-GF-3, 39-HJ-1, 39-LG-2, 39-QH-1
Piagetian theory 39-DB-9, 39-DB-11, 39-GE-1, 39-OA-1, 39-OA-10
Play 39-EA-3, 39-LA-1, 39-NG-1, 39-NG-3
  learning centers for handicapped children 39-GE-8
Pregnancy. See Perinatal factors; Prenatal factors.
Prenatal factors 39-AA-11, 39-AA-12, 39-EA-2, 39-GE-10, 39-JE-4, 39-JE-5, 39-SD-3, 39-SE-2
Prisoner tutors 39-OA-12
Protection services for children 39-RH-3
Psychoses 39-AA-17, 39-JE-8, 39-KS-1
Psychotherapy for the family 39-LF-1
Public policy
  child protection (U.S. and England) 39-RH-4
Puerto Rican children 39-LA-4

Racial
  factors 39-NA-1
  identity 39-RD-1
Reading
  assessment 39-OJ-1
  disabilities 39-PB-4
  interests of children 39-PB-5
  parent participation 39-OJ-1
  skills 39-PB-1
  word perception 39-PB-2
Rehabilitation devices
  for control of impaired muscles 39-GE-5
Reinforcement techniques 39-AA-16
Religious development 39-NC-1
Residential programs 39-JG-1
Romanian children 39-NB-1
Rural children 39-DH-2, 39-JC-3, 39-NA-2

Schizophrenia 39-JH-2, 39-KS-1
School desegregation 39-OK-1
Scottish children 39-DB-16

- Screening
  - of learning disabled children 39-QF-2
- Self-concept. See Personality.
- Sensorimotor development 39-GE-15
- Sensory
  - development 39-CC-3
  - processes 39-CC-4
- Sex
  - characteristics 39-LA-8
  - differences 39-DB-16, 39-DD-3, 39-EB-1, 39-FA-2, 39-LA-1
  - hormone abnormalities 39-GC-4
  - knowledge of mentally retarded children 39-HC-2
  - role 39-FB-1, 39-FD-1, 39-FE-2
  - stereotypes 39-FD-1
  - stereotyping 39-FE-2
- Siblings 39-GC-3, 39-JE-4, 39-KJ-1, 39-LA-5, 39-LC-2, 39-RD-1
- Skeletal maturation 39-CF-1
- Skyjacking 39-EF-3
- Small pox vaccine 39-CA-1
- Social
  - adjustment 39-EA-4, 39-EB-4
  - attitudes 39-FA-7
  - behavior 39-DB-8, 39-FA-3, 39-HC-1, 39-LA-7
  - development 39-AA-21, 39-EA-3, 39-EC-1, 39-EC-3, 39-FA-2, 39-FA-5, 39-FA-6, 39-FA-8, 39-FA-9, 39-FB-1, 39-FE-1, 39-FE-2, 39-LA-3, 39-LC-1, 39-NC-1, 39-NG-2
    - of mentally retarded children 39-HC-2
    - of neonates 39-FA-1
  - functioning 39-FA-4
  - interactions 39-DB-3, 39-FA-3, 39-GF-3
  - parent-child interaction 39-LA-1
  - play behavior 39-NG-1
  - rules 39-LA-3
  - services 39-GF-1, 39-KR-1, 39-KS-1, 39-LF-1, 39-ND-1, 39-RA-1, 39-RE-1, 39-RE-2, 39-RE-3, 39-RF-1, 39-RH-1, 39-RH-3, 39-RH-4, 39-RH-5, 39-RH-6, 39-RH-7
  - studies education 39-OA-11
- Socioeconomic factors 39-AA-4, 39-AA-18, 39-AA-20, 39-AA-21, 39-DB-2, 39-DH-2, 39-NB-2, 39-NB-3, 39-ND-1
- Spanish
  - children 39-NB-1
  - -speaking children 39-NB-5
- Spatial orientation 39-DB-4
- Special education. See Education.
- Speech
  - articulation disorders 39-DH-3, 39-DH-4
  - nonverbal 39-HH-2
  - tests 39-GB-1
  - therapy 39-DH-3, 39-DH-4
  - See also Communication; Language.
- Sports 39-EA-3
  - programs 39-OD-1
- State surveys 39-GA-1, 39-OA-8
- Statistical surveys 39-AA-2, 39-RA-1, 39-SA-2
- Sudden infant death syndrome 39-SD-1
- Swedish children 39-FB-1
- Synanon Foundation, Inc. 39-DB-5, 39-MB-3

- Teacher
  - assessment (England) 39-OA-2
  - attitudes 39-OG-2
  - behavior 39-OG-3
  - education 39-OA-11, 39-OE-1, 39-OH-1
  - influence on family life 39-MB-4
  - -pupil interaction 39-GF-3
  - training 39-NB-1, 39-OG-3, 39-QH-2
  - verbal behavior 39-OA-1, 39-OA-10
- Technological aids for learning and physically handicapped children 39-GE-3
- Teen-agers. See Adolescents.
- Television 39-FE-2, 39-FE-4, 39-MC-1
  - antisocial portrayals 39-FE-1
  - viewing 39-FE-3
  - violence 39-FE-5
- Tests and measures
  - Ainsworth Scales 39-EA-1
  - American College Test—Mathematics; Natural Science 39-IA-5
  - Attitudes toward Education Questionnaire 39-DB-2
  - Auditory Comprehension of Language Test 39-DH-2
  - Bailey *et al.* Maternal Questionnaire 39-EF-1
  - Balthazar Scales of Adaptive Behavior I & II 39-HC-1
  - Barber Scales of Self-Regard 39-EB-5
  - Bayley Scales of Infant Development 39-EA-5, 39-LG-1
  - Berry-Buktenica Developmental Test of Visual-Motor Integration 39-GC-3
  - Behavior Rating Instrument for Autistic and Atypical Children 39-JE-1
  - Boehm-Slater Cognitive Skills Assessment Battery 39-OA-9

Boehm Test of Basic Concepts 39-AA-21
Brenner Developmental Test of School Readiness 39-NB-2
Bronfenbrenner Parent Behavior Questionnaire 39-MA-1
Bzoch-League Receptive-Expressive Emergent Language Scale 39-GE-15
Caregiver-Infant Interaction Code 39-HG-1
Carrow Test 39-DH-2
Cattell Infant Intelligence Scale 39-GC-3, 39-HH-1
Child Behavior Profile Checklist 39-GC-4, 39-JA-1
Childhood Social Functioning Inventory 39-RH-7
Children's Attitudes toward the Elderly 39-FA-7
Children's Behavior Inventory 39-JH-2, 39-JH-3
Children's Checking Task 39-JH-6
Children's Embedded Figures Test 39-JH-6
Children's Personal Data Inventory 39-JE-4
Child's Health Profile 39-SA-2
Combining Objects Test 39-DD-1, 39-DD-2
Comprehensive Sex Role Scale for Children 39-FE-2
Conners Abbreviated Rating Scale 39-JH-6
Conners Parent-Teacher Questionnaire 39-JH-2, 39-JH-3
Conners Teacher Rating Scale 39-LF-2
Cooperative Mathematics Series Algebra I Test 39-IA-5
Coopersmith Self-Esteem Inventory 39-EB-1, 39-EB-2
Crandall Intellectual Achievement Responsibility Questionnaire 39-EB-1
Crites Attitude Scale and Competence Test 39-OB-1
Cross-culture Test of Cognitive Development 39-DB-13
Culture Fair Inventory 39-DD-4
Denver Developmental Screening Test 39-OE-2
Depression Adjective Checklist 39-IA-1
development 39-DB-13, 39-HC-2, 39-NA-2, 39-NG-3
Developmental Test of Visual Motor Integration 39-HC-3
Differential Aptitude Test (Space Relations, Abstract Reasoning) 39-IA-5
Draw-A-Man Test 39-OE-2
Draw-A-Person Test 39-SD-5
Early Language Assessment Scale 39-DH-1
Emmerich Personal-Social Observation Scales 39-FA-4
Engelmann Basic Concept Inventory 39-NB-2
evaluation 39-JE-8
Flanders System of Interaction Analysis 39-GE-1
for partially hearing children 39-GB-1
Gestalt Transformation Test 39-DD-2
Global Improvement Scale 39-JH-6
Goodenough-Harris Draw-A-Man Test 39-GC-3
Gunzberg Progress Assessment Chart of Social Development 39-HH-1
Hiskey-Nebraska Test of Learning Aptitude 39-GC-5
Illinois Test of Psycholinguistic Abilities 39-AA-21, 39-HC-3, 39-NB-2
Individual Cognitive Demand Schedule 39-GE-1
Infant Activity Level Checklist 39-HG-1
Interpersonal Checklist 39-SD-5
Involvement Instrument 39-OA-4
Jordan Ad Hoc Scale of Development 39-AA-21
Kvaraceus Delinquency Proneness Scale 39-KD-1
Least Preferred Playmate Scale 39-FA-2
McCarthy Scales of Children's Abilities 39-DB-5, 39-DD-3, 39-MB-3
McDaniels Inferred Self-Concept Scale 39-EB-4
Madsen Cooperation Board 39-EA-3
Masculine Role Judgment Scale 39-LA-8
Matching Familiar Figures Test 39-JH-6
Mecham Verbal Language Development Scale 39-GE-15
Melamed *et al.* Behavior Profile Rating Scale 39-EF-1
Merrill Palmer Scale of Mental Tests 39-GE-6
Metropolitan Achievement Test, Primary I and II Batteries 39-NB-2
Metropolitan Readiness Test 39-NB-2
Minnesota Multiphasic Personality Inventory 39-CG-4, 39-EA-5, 39-SD-5
Minor Illness Inventory 39-SA-1
Miskimins Self-Goal Other Discrepancy Scale 39-OF-2
Mooney Problem Checklist 39-IA-1
Moos Family Environment Scale 39-DB-2
New Uses Test 39-DD-1, 39-DD-2
Open Space Observation Guide 39-OG-1

Peabody Individual Achievement Test 39-MB-3, 39-QF-3
Peabody Picture Vocabulary Test 39-AA-21, 39-DB-2, 39-DH-5, 39-GE-15, 39-HH-1, 39-JE-7, 39-OA-9
Peterson-Quay Behavior Problem Check List 39-JH-1, 39-LF-2
Piagetian Mathematical Concepts Battery 39-DB-2
Piagetian Pendulum and Balance Problem 39-EB-3
Piagetian Punishment Judgment Tasks 39-DB-2
Piagetian Reasoning Measure 39-GE-1
Piers-Harris Self-Concept Scale 39-EB-2, 39-EB-7
Porteus Maze Test 39-JH-6
Preschool Attainment Record 39-AA-21, 39-GE-15
Preschool Inventory 39-AA-21
Preschool Language Scale 39-GE-15
problems 39-DD-1
Quantitative Comparisons Test 39-PA-1
Raven Coloured Progressive Matrices 39-DB-2
Redwood Freshman Attitude Survey 39-OG-2
Redwood Teacher Attitude Survey 39-OG-2
Response to Moods and Emotions Pictures 39-JE-7
Rod and Frame Test 39-DD-2
Rorschach Inkblot Test 39-EA-5, 39-SD-5
Rotter IE Scale 39-OH-1
Runner Studies of Attitude Patterns 39-GE-1
Schaefer Parent Attitude Research Instrument 39-OE-2
Schaeffer Classroom Behavior Survey Instrument 39-EB-4
Scholastic Aptitude Test 39-IA-5
Scott Foresman Vocabulary Test 39-OE-2
Sears Self-Concept Inventory 39-EB-1
Self-Concept and Motivation Inventory 39-EB-2
Self-Esteem Behavior Form 39-OG-1
Self-Esteem Inventory 39-OG-1
Social Dialect Feature Inventory 39-PB-1
Social Interaction Schedule 39-GE-1
Spache Reading Test 39-QF-3
Sperber Interviews Rating Scale 39-LA-2
Spielberger State Trait Anxiety Inventory for Children 39-EB-1
Stanford Achievement Tests 39-GC-5
Stanford-Binet Intelligence Scale 39-GC-3
Stanford-Binet Picture Vocabulary Subtest 39-JE-7
Stanford Children's Scale of Hypnotic Responsiveness 39-GE-17
Substitute Uses Test 39-DD-1, 39-DD-2
Survey of Interpersonal Values 39-IA-1
Swayne Preference Inventory 39-PB-3
Taylor Manifest Anxiety Scale (Bendig Form) 39-EF-1
Thematic Apperception Test 39-EA-5, 39-SD-5
Torrance Creativity Test 39-OH-1
Torrance Thinking Creatively in Action and Movement Test 39-OE-1
Uzgiris-Hunt Scales 39-HG-2
Verbal Language Development Scale 39-AA-21
Vineland Social Maturity Scale 39-CG-4, 39-GC-3, 39-HH-1, 39-OA-9
Wechsler Adult Intelligence Scale 39-SD-5
Wechsler Intelligence Scale for Children 39-CG-4, 39-QF-3, 39-SD-5
Wechsler Intelligence Scale for Children-R 39-DD-4, 39-GC-5, 39-HC-3, 39-QE-1, 39-SD-5
Wechsler Intelligence Scale for Children-Verbal 39-GE-1
Wechsler Preschool and Primary Scale of Intelligence (Vocabulary Subtest) 39-AA-21
Wepman Auditory Discrimination Test 39-HC-3
Wide Range Achievement Test 39-GE-1, 39-QF-3
Written Analogical Reasoning Test 39-DB-9
Therapy
  psychiatric 39-JH-1
Time
  concept development 39-DE-2
Tutoring 39-PA-2
Twin studies 39-AA-6, 39-AA-12, 39-DB-2

Unemployment 39-RF-1

Values 39-AA-8, 39-EC-2, 39-EC-3, 39-IA-1, 39-MB-1, 39-MB-4
Videotapes 39-AA-14, 39-JE-3
Violence 39-FE-5, 39-LA-5
Visual
  handicaps 39-CC-2
  imagery 39-CC-1

  - perception 39-DB-6, 39-PB-2
  - problems 39-HJ-1
- Vocational
  - exploration of superior students 39-AA-19
- Welfare services. See Social Services.
- Welsh children 39-GE-2, 39-OA-3
- Zambian children 39-NA-2

OTHER ABSTRACTING JOURNALS AND SERVICES

Abstracts of Hospital Management Studies (quarterly), the Cooperative Information Center of Hospital Management Studies, University of Michigan, 220 East Huron Street, 419 City Center Building, Ann Arbor, Michigan 48108.

Abstracts on Criminology and Penology, Criminological Foundation, Rapenburg 38, Leiden, The Netherlands.

Communication Disorders, Information Center for Hearing, Speech, and Disorders of Human Communication, The Johns Hopkins Medical Institutions, 310 Harriet Lane Home, Baltimore, Maryland. 21205.

Current Awareness Service (monthly), the Institute for Research into Mental and Multiple Handicap, 16 Fitztroy Square, London W1P 5HQ, England. The service provides a listing of newly published journal articles; new books are listed every 2 months; and there is a monthly guide to forthcoming professional meetings in the field. Request a Publications List from Denise McKnight, Information Officer.

Current Index to Journals in Education (monthly), Macmillan Information, A Division of Macmillan Publishing Corporation, Inc., 216R Brown Street, Riverside, New Jersey 08075.

Dissertation Abstracts, University Microfilms, Ann Arbor, Michigan 48103. (Gives synopses of U.S. doctoral dissertations with an annual index.)

dsh Abstracts, Deafness, Speech and Hearing Publications, Gallaudet College, Washington, D.C. 20002.

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ERIC Clearinghouse on Early Childhood Education, Publications Office, 805 West Pennsylvania Avenue, Urbana, Illinois 61801, publishes a quarterly newsletter; subscription, $2.00. Also available free, a List of Publications relating to children, ages 0 through 12.

Exceptional Child Education Abstracts (quarterly), The Council for Exceptional Children, Box 6034, Mid City Station, Washington, D. C. 20005.

Excerpta Medica Foundation, New York Academy of Medicine Building, 2 East 103rd Street, New York 10029, and 119-123 Herengracht, Amsterdam C, The Netherlands, has established an abstracting service on pediatrics, available on a yearly subscription basis. In addition to abstracts, the Foundation provides to subscribers, at cost, photocopies and translations of complete articles.

Health Economic Studies Information Exchange, Division of Medical Care Administration, Public Health Service, Washington, D. C. 20402.

Index Medicus, National Institutes of Health. Order from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

Language and Language Behavior Abstracts (quarterly), Center for Research on Language and Language Behavior, University of Michigan, Ann Arbor, Michigan 48104. Order from Subscription Manager, LLBA, Meredith Publishing Co., 440 Park Avenue South, New York, New York 10016.

National Bureau of Child Welfare Library (Voor Kinderbescherming), Stadhouderslaan 150, The Hague, The Netherlands, publishes abstracts of articles in the field of child welfare each month. The articles are in Dutch, but those familiar with the Universal Decimal System would be able to understand something about the articles. The subscription rate for documentation on cards is 30 guilders (approximately $8.40).

Nutrition Abstracts and Reviews, Commonwealth Bureau of Animal Nutrition, Bucksburn, Aberdeen AB2 9SB, Scotland.

Poverty and Human Resources Abstracts (bimonthly), Institute of Labor and Industrial Relations, University of Michigan-Wayne State University, P. O. Box 1567, Ann Arbor, Michigan 48106.

Psychological Abstracts, American Psychological Association, 1333 — 16th Street, N.W., Washington, D. C. 20036.

Rehabilitation Literature, National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612.

Research in Education (monthly), Computer Microfilm International Corporation, P. O. Box 190, Arlington, Virginia 22210.

Science Information Exchange, Smithsonian Institution, 209 Madison National Bank Building, 1730 M Street, N.W., Washington, D. C. 20036 provides to qualified investigators, for a fee, selected abstracts of current research supported by foundation or government grants. The exchange covers such fields as medicine, nursing, public health, nutrition, psychology, education, anthropology, mental health, and intercultural relations.

Sociological Abstracts, 15 East 31st Street, New York, New York 10016.

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